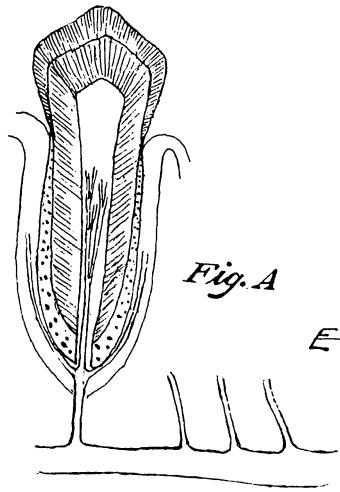


Fig. A.

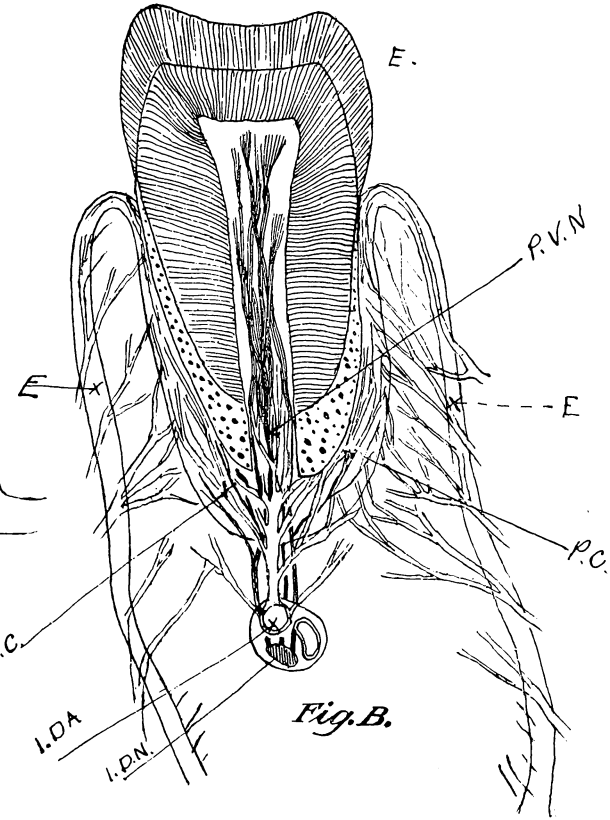


Fig. B.

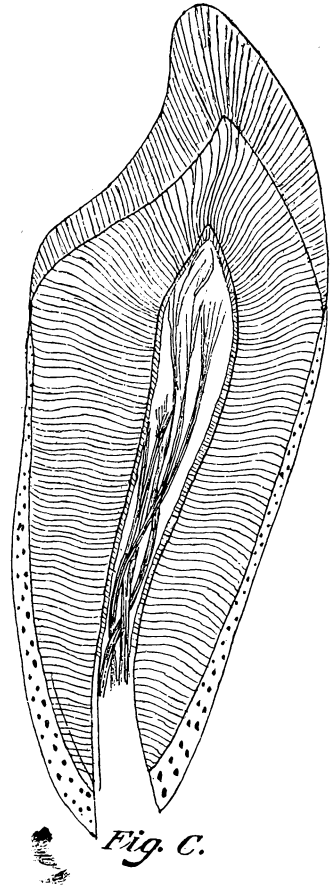


Fig. C.

Fig. A.—Usual diagram of vessels entering the pulp canal.

Fig. B.—Diagram of probable mode of blood supply to pericementum and pulp. Vessels from external periosteum exaggerated. I. D. N.—Inferior dental nerve. I. D. A.—Inferior dental artery. P. C.—Pericementum. P. V. N.—Pulp vessels and nerve. E.—Maxillary periosteum.

Fig. C.—Section of cuspid, age 13, showing nerves in medullated bundles.

The Nerve and Blood Supply of the Dental Pulp.

By H. H. BURCHARD, M.D., D.D.S., Philadelphia, Pa.

The subject of your inquiry* is an interesting one, not only from its mere anatomical association, but as you suggest, also from its clinical bearings. Unfortunately the question cannot be directly and precisely answered from evidence so far presented, but sufficient data are available to show that the recorded anatomy is not entirely correct. To state or show that a single arterial and single nerve trunk come as distinct subdivisions of the inferior dental artery and nerve, enter the alveolus, send a single trunk into each tooth root, branches of which trunks are distributed to the pericementum, the subdivision of vessels and nerves occurring in the apical pericementum, as shown in Fig. A, is merely diagrammatic exposition and a demonstrable exaggeration of the actual conditions.

On the other hand, the assertion that the main vascular and neural supply to the teeth, is not from the inferior dental artery and nerve, in the lower jaw, and the dental arteries and nerves in the upper jaw, is an unwarrantable deduction in the other direction, supported by few and insufficient clinical data and based on actual observation.

Recorded Views of Previous Writers.

The debatable ground in this question, is that of the arterial and neural arrangement in the apical pericementum. Let us review the evidence on both sides of this territory, for there we have positive data. Taking first a mature tooth, it is certain that several arterial trunks enter the apical foramen, a number diminishing with age. These vessels are unmistakably arteries as they have three tunics, endothelial, muscular and the adventitia; the muscular coat disappears rather abruptly in the pulp vessels.

* The query sent to Dr. Burchard was the same as the one on this subject partly answered by Dr. Williams in the last issue.

Black's* work demonstrated that the arterial supply in the apical pericementum consists of numerous, not a single arterial trunk; that is, the vascular supply to the dental tissues is derived from a number of arteries. The question remains as to the origin of these trunks.

It has long been accepted and repeatedly demonstrated that the inferior dental artery in its passage through the body of the lower jaw, gives off branches which pass in the direction of the teeth. A dissection of Prof. M. H. Cryer, unfortunately not injected, shows distinct bony canals passing from the inferior dental canal to the roots of several teeth, in such a manner as to make it evident that this is the main arterial source. These remarks apply also to the neural supply, which also enters the apical pericementum, passing into the pulp and lateral pericementum in multiple not single branches.

There is another feature of this subject which is not given the prominence belonging to it, viz.: the collateral circulation. Its importance will be more evident from a review of some clinical records.

Collateral, Neural and Arterial Supply

In some cases where occlusion of the inferior dental artery of one side has occurred, necrosis of one-half the lower jaw has followed, which would indicate that the bone is dependent upon this trunk for its nutrition, as it doubtless is, in a large measure; but, in other cases it has been observed, that where the inferior dental canal has been entered and its contents destroyed, necrosis of the bone did not follow; cases in the practice of both Garretson and Brophy demonstrated this, and indicate positively that the collateral circulation to the jaw *may* be sufficient to maintain its vitality. I believe it has also been asserted that the dental pulps of the side operated upon, have remained vital. The anastomosis of the branches of the inferior dental artery are usually described as taking place in the region of the mental foramen, branches of the external maxillary or facial artery, the coronary, mental and submental arteries, anastomosing with the mental branches of the inferior dental.

I have long believed that this but partially expresses the anatomical relations; branches of the lingual artery (the sublingual) are brought in close relationship with the lower jaw, posteriorly anastomosing with the gingival arteries from other sources; branches of the facial artery and branches other than the inferior dental, of the internal maxillary artery, are all probably sources of the maxillary blood supply, and I believe that careful dissection will show that vessels from all of these sources ramify in the periosteum of the jaw, sending branches into the jaw which anastomose with branches of the inferior dental artery. It admits of no doubt

* Periosteum and Peridental Membrane, 1887.

that the Haversion system of the jaws is more free and ample than is recorded in the books on anatomy, and that the inferior dental artery, although the main source of blood supply, is not the whole source.

Vessels of the Pulp and Pericementum.

As to the exact relationship between the vessels of the pulp and those of the pericementum, evidences must be sought in very young embryos, three months and later. First, a blood supply (vessels) becomes evident in the dentinal papilla (the future pulp) before the follicular walls (in part the future pericementum) is outlined. When the dental tissues proper begin to form, the follicles lie in a gutter of bone, their bases (the future necks of the teeth), separated from the bone by a comparatively thin layer of fibro vascular tissue in which lies the inferior dental vessels. At this stage, numerous arterial trunks are seen passing into the immature pulp; the supply being more marked than that to the external follicular wall, which is separated from the periosteum of the bony trough by a quantity of loose tissue. In injected specimens at this stage, vessels from the external periosteum may be seen passing into and through a free system, into what will be the future periosteum; at this stage, seven months, this lateral blood supply is more marked than that from the base of the dentinal papilla, and is quite distinct from the vascular supply to the pulp. This lateral blood supply persists with the thickening of the bony walls which will ultimately bring about the fusion of the periosteum with the pericementum proper. Although the pericementum is a single membrane after root formation, prior to it, its duality is unmistakable. Bone forms around all of the arterial trunks enclosing them. In studying the vascular supply to the jaws, it must be kept in mind that at first trunks are supplied to visceral arches at an early stage, and that differentiation of the tissues of these arches into bone, muscles, fascia, glands, etc., produces changes in the anatomy of the vascular supply.* Arterial trunks, at first surrounded by indifferent, then fibrous tissue, become enclosed in bony channels by ossification taking place about them.

The evidence therefore is that, the pericementum apical and lateral is supplied with blood from arteries which enter the apical space in several branches of the dental arterial trunks, and in addition receives a freely anastomosing supply via the alveolar walls. The vessels of the pulp, in several trunks are mainly from the dental trunks proper. In event of obliteration of these latter trunks, the anastomotic circulation, both through alveolar walls and by continuity at the alveolar margins with the maxillary periosteum, might be sufficient to keep up the circulation in the pulp, Fig. B.

* See Hertwig's Embriology.

Until further evidence is brought to light, I believe the neural supply of the pulp to be from branches of the dental trunks proper, although it is unquestionable that nerves pass over the alveolar rim into the pericementum.

Nerves of the Pulp.

I cannot answer the question positively as to the nerves at the point of entry in the mature tooth, but one-third the way up the canal in a tooth, as in Fig. C., the nerves are in *several medullated* bundles; following the course of the main blood vessels, these bundles split into fibrillæ beneath the layer of odontoblasts with which they have a doubtful relationship. The condition of the nerves shown in Fig. C from which vessels have been omitted, proves that they enter the apex in number as do the vessels.

Black has found similar bundles in the apical pericementum which are distributed to that membrane, and he states the bundles passing into the pulp have the same origin, which is almost necessarily, the inferior dental nerve. In the upper jaw there is no doubt of the penetration of both vessels and nerves through the antral wall, and into channels of the basal portion of the alveolar bone.

It may appear strange, that pulp and pericemental nerves, having a common source should differ so in their sensory reactions. This is explainable by the fact that it is the terminals of a nerve which determine its function.

The reason why nerve fibres are not seen projecting from the apical foramina of extracted teeth, is no doubt, because of the delicacy of nerve fibres of such tenuity; it is quite probable that if the base of the alveolus could be examined, that ruptured fibres and vessels would be found.

The exact relationships, origins, etc., of the vessels and nerves with the teeth, will only be known when some investigator takes fresh and perfectly injected specimens of jaws, and prepares both teeth and jaws after the Weil method.

The Nerve and Blood Supply of the Dental Pulp.

By Dr. X. V. Sudduth, Memphis, Tenn.

It is my belief that the nerve as well as the blood passes through the formina exclusively. This being the first time this question* had been put to me in this light, I have delayed answering to make some experiments, and while I have made no microscopical examinations or cuts, will give you the benefit of what I have done.

* The above is in reply to the same query sent to Dr. Williams and Dr. Burchard.

1st. I took a first upper molar, the palatine root of which was nearly exposed to the end, with a cavity below a level with the body of the pulp —cavity very sensitive. I passed a sharp instrument over the end of the exposed root and destroyed the sensation in the cavity—no anaesthetic used. By passing the instrument over the end of the root I believe I cut the nerve communication in that root.

2d. I have devised a set of instruments, with which I can force a two per cent. cocaine solution through the tubuli into the pulp. With these instruments I have made numerous experiments, with your question in view. I have forced the cocaine into the pulp through the crown of a tooth, and drilled into the dentine, between live cementum and the pulp, within a few seconds, without pain, showing that the anaesthetic had cut off the nerve supply between the foramen and the dentine, and that the dentine therefore did not receive nerves of sensation (at least) from the cementum, and last, but not least, if the nerves were continuous from the cementum into the pulp, would not arsenic always kill the cementum instead of only occasionally, when applied for devitalization?

Combination Fillings of Gold and Amalgam.

By C. EDMUND KELLS, New Orleans, La.

As each year succeeds its predecessor, and thus adds another twelve months experience as a guide to future practice, the advantages of combination fillings of gold and amalgam are but rendered more manifest, and I am now, more than ever, convinced that such a combination will, in many instances save teeth better than either material used alone.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 1 shows a large compound cavity in a molar, the cavity extending well above the gum upon the anterior approximal surface, and including nearly all of the coronal surface; a type of case with which we are all too familiar. The pulp may or may not be dead. If the former, the root canals and pulp chamber are filled with *oxy-chloride*, the cement

being filled in to restore the shape of the pulp, and nearly all the dentine, only allowing space for a comparatively thin "veneer" of metal, it being presumed that the less metal in a tooth the better; although such a process I must admit ofttimes renders the final operation of filling much more difficult.

Fig. 2 shows the tooth as now filled with cement and ready for the combination filling.

The next step is to carefully pack gutta percha along the labial wall, as shown in Fig. 3—just where it is desired to pack the gold. The edges are to be carefully trimmed, and the gutta percha given slightly more contour than will be desired in the finished filling.

If a matrix is to be used, as is often done, it is *now* adjusted, and the amalgam carefully packed into the balance of the cavity.

The removal of the matrix and the careful finishing of the amalgam, with special care given to its non-occlusion is the next step, and the patient dismissed for the day, with instructions of course not to bite on that tooth.

Fig. 5.

Fig. 6.

Fig. 7.

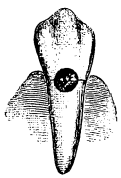


Fig. 8.

A piece of orange wood trimmed, as shown in Fig. 4, and *slightly moistened,* forms a most admirable instrument with which to trim away the excess of amalgam at the cervical wall, it being for this purpose better than a steel blade.

Waxed silk, of course, is also invaluable for this purpose, and if a knot is tied in it, its efficacy is greatly increased.

At the next sitting the gutta percha is quickly removed, displaying a nice clean cavity *all ready* for the insertion of the gold, which is packed without the use of the matrix.

Soft gold is indicated here, and is used to great advantage.

Fig. 5 shows the completed operation, which when viewed from the front shows the gold only, and the color of the tooth is retained.

Now let us note the advantages of this over an all gold filling. I have frequently seen such cavities filled by experts, at clinics, the time consumed being several (three or four) hours for the packing of the gold alone, the finishing being usually deferred on such occasions. At the conclusion of the insertion of the gold, both patient and operator are worn out, (in private practice, such a piece of work for an ordinary

female patient would prove absolutely exhausting) and the work of "finishing up" especially beneath the gum is exceedingly difficult and tedious, and usually painful.

One of the great advantages of the combination filling is that it divides the work between two sittings, saves an enormous amount of time, and the shaping of the soft amalgam is comparatively easily and quickly done, as is also the subsequent polishing.

One hour, under ordinary circumstances, is ample for the preparation of the cavity, (after the roots are filled, if that was necessary) inserting the gutta percha and amalgam, and smoothing them up carefully.

At the next sitting, another hour is a generous allowance of time for the insertion of the gold, and finishing both gold and amalgam. Thus the work is done at a minimum of exertion to the operator, and discomfort to the patient, and to my mind, or at least in my hands, a much more satisfactory result accomplished.

Fig. 6 shows a bicuspid filled in this manner, a method particularly well adapted for them.

Frail cuspids, laterals, and centrals, have all been treated in this manner in my practice.

Occasionally, a case presents as shown in Fig. 7, when a different treatment is advisable. In this instance the decay has extended so far above the gum that it is practically impossible to get the dam on satisfactorily, and yet gold is desired for the body of the tooth. Here then amalgam is packed upon the cervical wall and brought down to about the gum line, and squared off nicely. At the next sitting the dam is applied, and the remainder of the cavity filled with gold, the finished filling being shown.

While this specimen shows a molar, this treatment is also specially adapted to bicuspids.

Fig. 8 shows the finished filling in another class of cavities, that I believe are a "trial to men's souls." In these cases the decay has progressed extensively upon the cementum of the root, and extends perhaps, an eighth of an inch above the gum, the result being that it is almost impossible to pack gold and finish it satisfactorily at that inaccessible cervical margin.

The gum having been forced away somewhat by the aid of cotton, or gutta percha packed in the cavity for a day or two, the amalgam is inserted in the upper part of the cavity, (and packed as hard and dry as it is possible to manipulate it) and trimmed carefully so as to be entirely covered by the gum after it has healed, and the remainder of the cavity filled with gutta percha.

At the next sitting, the gutta percha is replaced by gold, the effect being that of an all gold filling, but the durability being much greater.

The manipulation of the amalgam is as follows: My assistant mixes the alloy in the palm of her hand, until the mercury and filings are fairly well incorporated. It is then washed thoroughly with alcohol, dried in a clean napkin, and placed upon a clean sheet of paper, and triturated with a spatula until it assumes a fine even grain, when it is squeezed in china silk (not chamois) into as dry a state as can be manipulated.

FIG. 9.

As in this process the mass is not touched with the fingers *after* it is washed, it is thus handled with as great care as is gold.

For its packing, smooth instruments, balls and blades are used, always using the *ball* instrument best adapted to that particular portion of the cavity in hand.

Fig. 9 shows the set of instruments as used in this work. These are paired in double end socket handles, so that the two points to the same handle work to advantage together.

If a small fissure is excavated by a No. ½ or No. 1 bur, ball No. 1 is used to fill this fissure. If a No. 2 bur is used to prepare the cavity, ball No. 2 is used to fill it, and so on.

The balls are in pairs, one bent at a right angle, the other nearly at forty-five, thus making them accessible to all parts of the cavity. The blades are used in forcing the dry amalgam into the cavities, and shaping up certain fillings.

While some may imagine there are an unnecessary number of these instruments, and the variations in sizes are too slight, for the *system* I use in preparing and filling cavities, each filling instrument following up a given sized bur, there is not only no loss of time by such, but on the contrary, a decided advantage to me.

In this section of the country we have a frail condition of teeth with which to contend; bicuspids and molars are met daily that are soft and brown, and sadly carious. In these cases all gold fillings will not stand, and the sooner that is realized the better for all parties concerned; while such fillings as I have described will save these very teeth. Within the past few months I have seen a number of patients for whom such work was done from six to twelve years ago, and the teeth in perfect condition, while other teeth of the same patients have broken down, and it is upon such records that I base my continuance of such practice.

It must be understood that every step in this work must be executed with the greatest care. The margins of the cavity must be nicely polished by the aid of fine cut burs, absolute dryness insured, the amalgam packed as dry as possible, and the finishing receive particular attention, for all of which one is amply repaid by the satisfactory results obtained.

A Step-Child of Dentistry.

By Otto Bickel, D.D.S., New York.

It is a sad, but an indisputable fact, that the treatment of wounds, caused by the extraction of teeth, is a true step-child of dentistry.

Whilst our profession does its utmost in striving for asepsis in the treatment of root canals, we have almost forgotten to do our duty as to the wounds inflicted by the merciless dental forceps.

This strange fact can only be explained, if we consider that in most cases the patient does not return, unless there is a severe complication.

A fatal case which I saw lately, causes me to take up the matter and speak a few words of warning in behalf of this neglected part of dentistry.

We all know that the oral cavity is a perfect incubator for the culture of numerous kinds of micro-organisms. But in spite of our knowledge, the extraction wound, in most cases, is left to the mercy of these minute enemies. The slight germicidal power of the saliva is a mere mechanical one—its continuous flow constantly disturbing the work of the dreaded bacilli. Furthermore, the locality of the dentist's operations renders it impossible to enjoy the blessing of thorough asepsis. Therefore, it must be our earnest endeavor to make abundant use of antisepsis as far as possible; for instance, the patient's mouth presents stomatitis, or the teeth are neglected and unclean. Is it not a natural consequence that the extraction wound should show a suppurative tendency?

Now, in order to abort this tendency, should we not use a small ball of absorbent cotton saturated with some kind of antiseptic solution, thus closing out the intruding germs?

If a mouth is well cared for, a weak solution of permanganate of potash will not only promote healing, but it will also abolish the disagreeable smell originating from the wound. But if we are confronted with a neglected mouth, or if a difficult or several extractions have been performed, it is decidedly advisable and very necessary to utilize all our available means of antisepsis before the patient has left the chair. Many a case of necrosis will be thus avoided.

I have found the use of iodoform-ether applications, which have been recommended to the profession, reliable in all cases. This solution has not only a prophylactic, antiseptic effect, but it likewise shows styptic qualities. When called upon, it will never refuse to act.

Animated by Hill's interesting paper about the introduction of Dr. Crede's new antiseptics into dentistry, I have tried the two silver-salts, and consider Crede's preparation a very effective weapon in the battle against micro-organisms.

SOCIETY PAPERS

Rational Treatment of the Dental Pulp.

By Dr. M. L. Rhein, New York.

Read before the Central Dental Association of Northern New Jersey, March, 1898.

In the traditions of our profession nothing has been held more sacred than the life of the dental pulp. Today some of the ablest teachers in our ranks are noted for their masterful arguments in favor of the conservative treatment of this organ, and for their scientific devices for preserving its vitality when exposed to the bacterial influences of the oral cavity.

After following for years with the deepest respect, these, we might say, universally recognized doctrines, I found myself diverging more and more from what might be considered orthodox, until at length I became convinced that much error is contained in this dogma. Hence, it is with a feeling akin to presumption that I place before the profession, a presentation of the treatment of this organ, which, while it may appear radical in the extreme, I consider to be based strictly on rational principles.

Function of the Dental Pulp.

What is the function of the dental pulp? From an anatomical standpoint, it occupies the largest area at the time of the eruption of the tooth, and then commences gradually to dwindle in size until, if remaining in situ at the period of senility, it occupies then only a minute space in the interior of the tooth.

Microscopic investigations teach us that the pulp, during the period of adolescence, constantly furnishes inorganic matter to the dentine, as well as providing sufficient organic nutriment for the complete development of the tooth, which, at the stage of its eruption, is neither entirely formed nor properly solidified. It should be unnecessary for me to speak of the function of the odontoblasts and how they replace the area of lost pulp tissue with secondary dentine.

In view of the universal acceptance of these views, it must be distinctly understood, that whatever criticism may be presented against the conservation of an exposed pulp, or whatever arguments may be advanced in favor of extirpating pulps that may not even be exposed, has no bearing on the pulps in the teeth of *adolescents*; quite to the contrary, every argument that may be advanced in favor of radically removing the pulps of adult teeth, equally favors the conservation of these organs in the teeth of the young to an age of full maturity. Between the ages five and twenty-five, the life of the dental pulp should be considered of the greatest importance, and however *injured by disease or accident*, every means should be used to preserve its vitality; if only for a year, a month, or even a week.* During this period, every hour that vitality can be maintained in such a pulp, tends to improve the solidity of the dental organ in question.

Leaving behind all consideration of the age of immaturity, we turn our attention exclusively to the pulps of teeth where the age of the patient is an evidence that the period of puberty has long since been passed. It is a well demonstrated fact that, in proportion as the area of the pulp space is filled with *secondary* dentine, there is a corresponding lessening of the amount of nutrition brought by the pulp to the dentine beyond the original pulp area, in the coronal portion of the tooth, until finally the time arrives when it may be said that this portion of the tooth ceases to receive any further nutriment from the pulp. At this period in life, it may be stated that the beneficent function of the pulp ceases. During the remaining portion of life, its whole aim seems to be concentrated in filling up its own area with *secondary* dentine. This solidification of the root-canal, while it is of no further benefit as regards either the usefulness or the stability of the tooth, is likewise productive of no injury to the tooth as long as the physical function remains normal, and the health of the individual unimpaired.

Civilization, with its strain upon the human frame, permits but a small portion of mankind to pass through the period of middle life without more or less physical impairment. Certain forms of these pathological conditions are especially productive of danger, not only to the life of the small remaining portion of the pulp, but they are also a constant menace to the comfort of the individual, from their liability to produce very intense neuralgia or acute abscess.

Viewing the tooth as an articular body, connected to the alveolar portion of the maxilla by means of a double fold of pericemental membrane, its vitality must depend entirely upon the good health of this pericemental tissue from the gum line to the end of the root. Our litera-

* In many people the age of full development is reached at twenty.

ture fails to give us the slightest scientific data from which the fact can be deduced that the conservation of the life of the pulp aids in enhancing either the vitality or the stability of the tooth after a certain amount of consolidation of the pulp chamber has taken place.

Dental writings of the past two years, teem with contributions from prominent specialists in crown and bridge work. As a matter of clinical experience, these men have considered it their duty to warn the profession against the danger of crowning teeth containing living pulps, where it has been found necessary to remove nearly all of the enamel. Unfettered as crown and bridge work is by the customs and traditions of ordinary operative dentistry, these men meet with no opposition in promulgating a method of preparing teeth to be crowned. Their all pervading idea is to prevent future trouble arising from the dental pulp. Is there any logical reason why the same prophylactic treatment should not be observed in preparing teeth for the insertion of fillings? Considering as we are, teeth in the mouths of adults where thorough consolidation of the dentine has taken place, what excuse can there be for attempting to preserve the vitality of any exposed pulp in such a tooth?

Conserving Exposed Pulps Condemned.

Years ago, when the doctrine of conservative treatment of adult pulps was most strictly advocated, there was little known of our present reliable and exact methods of aseptic cleansing and filling of root-canals. At that time it was frequently a matter of chance whether a tooth with a devitalized pulp would be comfortable, or would need to be extracted on account of an alveolar abscess. Even where no inflammatory symptoms intervened, the profession was accustomed to regard a pulpless tooth as synonymous with more or less discoloration that would frequently spoil the æsthetic appearance of what otherwise would be a faultless denture. Under such conditions, it is easily understood that our best men used every means that art and science offered to preserve the waning vitality of an exposed pulp; because they feared the probability of a discolored tooth even if they escaped the worse results of an alveolar abscess.

Modern scientific root treatment has so changed this, that, in normal teeth, there is no excuse either for an abscess or for any discoloration of the tooth to follow the removal of the pulp. This condition of affairs removes the greatest objections that ever were raised for removing exposed pulps in adult teeth.

Let us consider what other objections remain. These consist in the necessity of removing a sufficient quantity of tooth structure so as to leave a fair entrance to each root-canal, and we might add, the additional time consumed in preparing and filling such canals. This extra

quantity of destroyed tooth structure can always be replaced by an indestructible filling, and the additional expense involved in giving more time to the patient becomes an actual economy when the avoidance of future trouble is properly realized.

Conserving Unexposed Pulps Discussed.

Passing now from the discussion of pulps actually exposed, let us consider teeth that require filling where, although the pulp is not exposed, intuitively the future death of the pulp is feared. The cavity may be in very close proximity to the pulp; pulp irritation may have already sounded a note of warning, or the lack of tone or poor temperament of the patient be so evident, as to enable the experienced practitioner to foresee a more or less speedy demise of the pulp. Every means of protecting such pulps by insulation of the metallic fillings have been devised, but how frequently are we not called upon to open into a suppurating pulp chamber where we know that there never has been any original exposure of such a pulp, but on the contrary, every means had been used to avoid pulp irritation?

It is far from my intent to say that in *every* large cavity the pulp should be removed, but there is a great number of cases where the experienced judgment of the dentist teaches him the danger of inserting a filling over such a pulp. Many of us have been accustomed to insert temporary fillings into such cavities. This appears almost like acknowledging our unwillingness to do our best for our patient. How frequently have we seen them suffering for months from pulpitis under a temporary filling, and assisted by us, with what? Words of good cheer, a little aconite and iodine, or, perhaps, some capsicum plasters. The time for such lack of knowledge of our duty has passed, and there is now no legitimate reason for retaining in any tooth, a pulp where irritation has once commenced, or where there is any well grounded fear of its death taking place. Cataphoresis has taken away the last sting from this operation, inasmuch as it has rendered the operation painless from the moment the electrode has been placed in position, as well as avoiding the complications sometimes following the use of arsenic.

Leaving this branch of the subject where the responsibility in leaving the pulps in carious teeth depends upon the good judgment of the operator, in individual cases we come to a class of teeth suffering from nutritional disturbances. This brings our attention to a clinical view of the local conditions of the various forms of pyorrhoea alveolaris.

Pulp Removal in Pyorrhœa.

Bearing in mind the fact that the tooth is articulated in the alveolar socket by means of the folds of the pericementum, it becomes at once apparent that the stability of the tooth in its articulation in

the maxilla, is dependent upon maintaining a healthy condition of the pericemental tissue, and everything else should be considered subservient to this fact. The proper removal of the pulp of the tooth can in no wise detract from such a healthy condition. The question may, however, very properly be asked, can an unhealthy condition of the pericemental tissue be improved by the removal of the pulp?

Our literature abounds in a number of empirical statements by different dentists that " the removal of the pulps was frequently followed by a cure of porrhœa alveolaris," though I know of no reason being given by any of my colleagues why such treatment should be productive of such beneficial results.

In all cases of true pyorrhœa, the local pathogenic condition is merely the result of malnutrition, due to some general disorder, or it is the toxic result of some drug. While it is impracticable in this paper to enter in detail into the classification of the multitudinous forms of pyorrhœa, I will stop to consider that large percentage of cases where there is always present a lack of nutritional corpuscles where the local dyscrasia can frequently be traced directly to necrosis caused by tissue starvation. While constitutional treatment in the shape of hygiene, exercise, tonics, and everything which tends to restore the normal tone of the system must be our main reliances, still the fact remains, attested to by many of my colleagues, that many cures in such cases have been traced to extirpating the living pulps of teeth which may never even have had an abrasion of their enameled surfaces, much less a cavity.

Considering the arterial anatomy of the pulp and pericementum, we find that the inferior dental branch of the maxillary portion of the internal maxillary artery sends out branches which supply the alveoli of the inferior maxilla, which diverge into minute capillaries, which again bifurcate in the region of the tooth ends, some entering the apical foramina of the teeth, while others pass into the pericementum and gums. In the same way, the alveolar branch of the spheno-maxillary portion of the internal maxillary artery sends its little twigs which divide and enter the apical foramen of the superior teeth, and also feed the pericementum and gum of the superior maxilla.

Considering a pathological condition where these branches contain an insufficient quantity of pabulum to properly replace the worn-out cells, what is more natural than that the cutting off of the blood supply to the root-canal of any tooth, and consequent diversion of this extra amount of arterial blood to the pericementum of this tooth, should be just sufficient to give the lacking amount of nutritional corpuscles to this tissue which before has been suffering from the effects of nothing less than starvation? This is the result that is to be expected when a

pulp is extirpated under such conditions. The life-giving blood which was being wasted in the process of filling up the root-canals with secondary dentine, is now added to the formerly inadequate quantity of blood required to replace the worn-out cells in the pericemental region.

Again, in a large number of cases of pyorrhœa, the local conditions become so pathogenic that resorption of the ends of the roots ensues, and we frequently find teeth with one-half of the root lost in this manner although the vitality of the pulp has remained unimpaired. The gradual loss of root substance causes a consequent diminution in the stability of

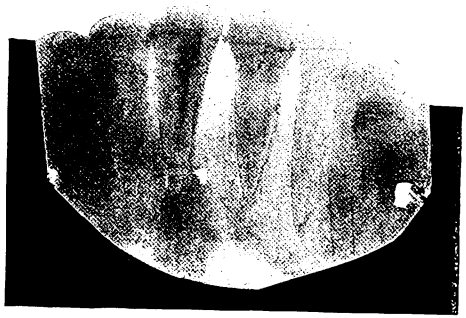


FIG. 1.

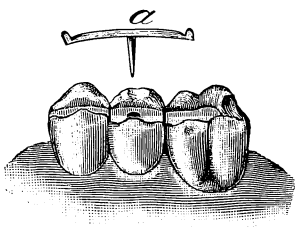


Fig. 3

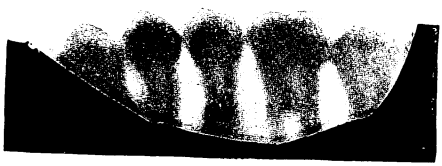


FIG. 2.

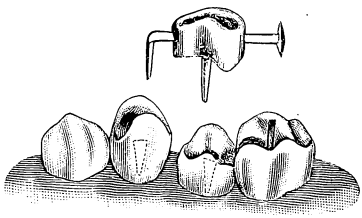


FIG. 4.

the tooth until it finally becomes very loose, and if left untreated, is eventually found with but little of the root remaining. There are specimens of such teeth where, on extraction, no remains of any root can be found. Such cases, if diagnosed before the tooth has become much loosened, and before much root and pericementum has been lost, are readily cured by extirpating the pulp and filling the root-canal. If this operation should not suffice to stop the loss of root substance, an opening should be made through the gum directly over the end of the root, and the end of the root amputated, following the same line of treatment

as would be used for the radical cure of an alveolar abscess.* In such cases as this, where the loss of root substance or pericementum has been so great as to impair the stability of the tooth, even if a healthy condition is restored, it is necessary in order to preserve the tooth, to connect it permanently with the adjoining two teeth. For this purpose, ligatures, bands or any other method which impinges in any way on the interdental spaces are contra-indicated.

In 1888,** I presented a method of permanently splinting two or more loosened teeth. After over ten years of clinical experience in this direction, I feel warranted in again presenting to the profession this same method as being of the greatest value in preserving in the mouth the most hopeless cases of loosened teeth.

Cases from Practice. Case No. 1.

In the diagnosis of these cases, the X-ray is of the greatest assistance, as it readily shows the beginning of such a condition of resorption. Fig. 1 illustrates a picture taken by Prof. W. J. Morton of such a case. Mr. W., age about thirty, lawyer, suffering from neurasthenia and anemia. The superior right central incisor is the only tooth attacked in the incisive region. The pulp was painlessly extirpated by means of cocaine cataphoresis. The end of the root was found to be wide open. At a subsequent sitting, a piece of zinc wire attached to the positive electrode was passed to the end of the root, and by means of electrolysis, oxychloride of zinc was generated. The current was kept in position for about eight minutes, showing at the close about two milliamperes. The root-canal was then filled with gutta percha and covered with oxyphosphate in the crown of the tooth. This picture was taken subsequent to the root filling.

Fig. 2 is an X-ray reproduction taken in the same mouth at the same time, showing the same pathogenic condition beginning at the ends of the roots of the inferior left second bicuspid. This patient was suddenly called out of town, and, since his return has been confined to his house with a severe attack of rheumatic arthritis, and further treatment has necessarily been postponed.

Case No. 2.

In order to show the treatment of such a case to completion, I record the particulars of another case. Mr. H., age about fifty, neurasthenic and gouty, has had one very severe attack of nervous prostration. He presented himself about October, 1896, for consultation in reference to the second superior left bicuspid, which was so loose that it could readily have been extracted with the fingers. There was a general

* Items of Interest, September, 1897, Page 688.
** Dental Cosmos, Vol. XXX, Page 184.

condition of pyorrhea, with deep deposits on all of the teeth, but this tooth alone was very loose. An X-ray revealed absorption of the apex of the root. By means of cocaine cataphoresis the pulp was painlessly removed, and after having been treated with the nascent chloride of zinc, the end of the root-canal was sealed with gutta percha and covered with oxyphosphate, leaving about one-half of the root-canal open.

This tooth being now ligated by means of dental floss to the adjoining bicuspid and molar, a deep groove was cut uninterruptedly from the inferior portion of the occlusal portion of the first bicuspid to nearly the posterior part of the same surface of the first molar, following a direct line through the center of the occlusal surfaces of the three teeth, so that when prepared they showed the appearance indicated in Fig. 3.

A plaster impression was then taken, and a triangular shaped piece of irridio platinum wire fitted to the floor of the groove, the base of the triangle lying against the floor. A pin or irridio platinum fitting in the root of the second bicuspid was soldered at a right angle to the base of the wire, so that when completed it presented the appearance shown in the illustration, Fig. 3 a.

At another sitting, the floor of the groove, with the exception of the opening leading into the root-canal of the second bicuspid, was covered with cohesive gold foil in the same manner as if it was to be entirely filled in this way. Oxyphosphate of zinc being then placed in the root-canal, the splint was cemented into the root of the second bicuspid, allowing the base of the triangular wire to rest on the gold covering on the floor of the groove. Cohesive gold foil was then packed in the groove in such a manner as to solidly enclose the irridio platinum wire; this in turn covered over with gold and platinum folds solidly packed in position by means of the electro-magnetic mallet, giving when completed a masticating surface which properly occluded with that of the inferior teeth. Up to the present time, no cause for dissatisfaction can be found with the result of this operation, and the same can be said of many other cases treated in a similar manner.*

Case No. 3. In some cases of the resorption of the roots of teeth, instead of retaining their proper occlusal position, they proceed to go up into the alveolar socket as the resorption progresses. In such cases it is always necessary to restore the proper occlusion. Fig. 4 shows such a case in the mouth of a spinster, aged about fifty, who came to me from Washington for the treatment of this tooth, the superior second right bicuspid,

* For the preparation of the irridio platinum wire, and many other valuable hints in these cases, I am indebted to Dr. C. L. Andrews.

which necessitated the removal of the pulps of both bicuspids. In this case, instead of making a long and tedious operation of restoring the lost occluding surface of the second bicuspid by filling, a solid gold cap exactly restoring this lost occlusive surface was soldered to the splint (see illustration), and this was eventually cemented into position, and the triangular piece of wire held by solid gold fillings in the first bicuspid and the molar.

In conclusion I would summarize by saying: in adolescents, conservative treatment of the dental pulp is imperatively demanded even at the risk of losing the confidence of the patient, which often happens.

In adults, however, after the age of twenty-five, an exposed pulp should always be extirpated as speedily as possible. In all cases, even where there is no exposure, the slightest apprehension that the dentist may have of his inability to preserve the life of the pulp, is a sufficient warrant for its removal.

Lastly, in many cases of pyorrhea alveolaris, the removal of the pulp is frequently of the greatest therapeutic value.

The Legal and Ethical Limit of Constitutional Treatment in Dentistry.

By H. Clay Ferris, D.D.S., Brooklyn, N. Y.

Read before the Second District Dental Society, February, 1898.

In selecting this subject, I have endeavored to throw some light upon an unsettled question; so that our professional brethren will understand our aims, and we will be better able to work harmoniously.

I think I but fairly state the case when I say that the members of the dental profession have no wish to go outside of what may be legitimately considered their proper work as dentists. Rather, they are confronted with advances in that legitimate work, which calls for a larger range of skill than was formerly considered adequate. They are better equipped in many directions, both as to acquired skill, and as to the therapeutic armamentarium necessary to the highest efficiency in their work. As a natural consequence and outgrowth of that, more or less, considerable additional freedom in the use of general therapeutic measures is not only admissible, but demanded for the best interest of the dental patient, if a dental surgeon is to measure up to his privilege. The problem is, to know how far he may legitimately go in the use of

these constitutional agents, to bring about the highest efficiency in the dental work.

In the past two or three years our profession has allied itself more closely with the medical profession, and has recognized more than ever the need of its assistance. The colleges have made it easy for a dentist to pursue the study of medicine to such helpful degree, that he may practice his specialty more intelligently. Those who have not had this privilege should perfect themselves by individual study.

It has been claimed by several dental writers, that a dentist usurps the rights of the medical profession when he uses drugs for their constitutional effects, and they have established the precedent, that we should not meddle with such drugs.

The position of these writers is untenable, because of the fact, that the majority of dentists are daily using some of the most powerful constitutional drugs known to medicine, agents which diminish the functional activity of the cerebrum after a preliminary stage of excitement. Such drugs are ether, chloroform, opium and chloral, the corrosive poison arsenic, and a compound of cocaine, morphine and the sulphate of atropine used hypodermically for its local anæsthetic effects. We use nitrus oxide with nitroglycerine, sulphate of strychnine, nitrate of amyl, brandy, etc., as antidotes when required.

With what right do we use these drugs? As far as I can learn from our profession the answer is "by popular sanction."

If we are allowed to use these drugs to assist us in relieving suffering humanity why should we not be privileged to use remedies having a quieting or stimulating effect upon the nervous system, as they would be indicated, before a lengthy operation, such as bromide of potassium, bromide of sodium, phenacetin, caffeine, aromatic ammonia, lupulin, etc.?

With the assistance of this class of drugs we render our patients less liable to nervous collapse, syncopy, complete prostration lasting for days. When treating a hyperesthetical temperament it is decidedly poor practice to ask patients to call on the family physician for treatment; for most of them will say, "I feel well enough; why should I see my doctor?" But if he persuades them and the physician does prescribe, then they are often in a worse condition nervously when they return to you on account of the mental worry they have expended, and are practically unfit to be operated upon. If the dentist can find who the physician is without arousing suspicion, and ask him to call upon such a patient and give him or her treatment, it is advisable to do so. But this is often impracticable except among the well to do.

When a doctor has recommended to the dentist a patient with a

blind abscess, possibly upon the root of a superior canine, and wants him to extract that tooth, and he refuses to do it, the doctor puts the case entirely in the dentist's hands and wants to be relieved of all responsibility.

The dentist finds after poulticing and enlargement of the apical foramen that he gets no pus. He administers five or ten grains of iodide of potassium to hasten metamorphosis and stimulate the lymphatic system. The accumulation of pus being increased the abscess points so he can lance it, or it breaks through the tooth and he saves for his patient an important member. Without this constitutional treatment the patient may develop septicaemia by absorption and die. Several cases of this kind are on record, some of them occurring in this city.

This particular class of cases as well as others has stimulated me to look up the true position of the dentist. Accordingly I have solicited legal opinions as to the bearings of the laws of our State on this subject, which are as follows:

Opinion of an Attorney.

George D. Beattys, A. B., Attorney and Counsellor-at-Law, says:

"You ask my opinion on the following question, viz.: To what extent can a person, authorized to practice dentistry in this State, treat a patient constitutionally, and not incur liability in a civil action for damages, if injury is alleged to have resulted to the patient by reason of such treatment.

"This question eludes exact and definite answer. The line which marks the boundary between the realm of the dentist and that of the physician is a shifting and not a stationary one.

"There is no statute law in this State which limits or restricts a dentist in his treatment of a patient, nor have I been able to find any decision of the Courts which does so.

"Of course a dentist, simply as such, is as much prohibited by statute from practicing medicine as any other person, unless the conditions of the statute are complied with. Still it must frequently happen that for a dentist to successfully perform certain dental work on a patient, some systemic treatment is necessary. If such treatment is merely incidental to the dental work, and the dentist is qualified by experience and education to successfully perform this treatment it would seem that no legal liability is incurred by him for any alleged injury if he properly does the work.

"Teeth are a sensitive index of a patient's general system, and a dentist, by his education and experience, can detect any disturbances of the system and should be allowed to treat them, if he is competent to

do it, when incidental to, and necessary for successful dental treatment of a patient.

"In administering anæsthetics, for instance, the dentist must determine whether the operation demands an anæsthetic; if so, whether it requires prolonged anæsthesia, or not; he must examine the condition of the patient as to circulation, etc., and decide whether it is suitable for the administration of the anæsthetic. In deciding these and other necessary matters, the dentist must have a thorough knowledge of the general system and of the anatomy of the human body.

"Of course, if a dentist or any one else attempts to practice medicine without complying with the provisions of the statute, he is, by virtue of the statute deemed guilty of a misdemeanor and can be criminally prosecuted. But even if a dentist did offend somewhat against the statute in connection with and incidental to his dental work, still in a civil action for damages for an injury alleged to have resulted, while the offense against the statute might be presumptive evidence of negligence or want of skill, he would be able to escape liability if he could establish to the satisfaction of the jury that he possessed the necessary knowledge and skill to treat the patient as he did, and exercised due care and skill, and that the treatment he gave was the proper and ordinary one in such cases.

"This whole matter, therefore, of liability in a civil action for damages for alleged malpractice, whether the treatment be strictly dental or constitutional resolves itself into the inquiry as to whether or not the dentist, in any treatment he may have given a patient, possessed the necessary skill and knowledge for the work and exercised proper and reasonable care and skill in the treatment. A dentist who uses a dangerous drug, must possess a fair working knowledge of it and all its effects, or he uses it at his peril; or if he encroaches on the domain of the physician in any treatment he incidentally gives a patient, he must possess the ordinary care, skill, and knowledge of the physician or he will be held liable in an action for damages if injury results. He must bring to bear upon any treatment he may give his patient all current medical knowledge; all the known rules and methods in use which the profession by its experience, knowledge, and wisdom has discovered and made known. It is the failure to meet these requirements; a failure to possess and apply this knowledge; a failure to possess and exercise proper care and skill—which renders the dentist, or any professional man, liable civilly for damages.

"Mere codes of ethics of dental or medical societies have no force or binding effect in law, and they are, therefore, not to be taken into account in the consideration of this matter."

Another Legal Opinion.

Edward B. Mowbray, A.B., LL.B., Attorney and Counsellor-at-Law, says:

"Referring to your request for my opinion as to the legal liability of a dentist in using anæsthetics, or other drugs, I would say, there is no direct statutory provision on the subject in this State, the statutes in regard to dentistry relating merely to the qualifications necessary to permit a person to practice.

"The practice of dentistry is of course a pursuit very generally known and understood. It includes the cleaning, extracting, repairing and setting of the teeth. It is a pursuit which involves a high degree of skill and it was proper for the legislature to prescribe the qualifications of the persons who were to perform these very important duties. The health and safety of society could be maintained and protected in no other manner. But there is, and properly, no attempt made to state the limitation of the practice. The practice is of necessity constantly changing. New and improved methods of treatment are being used, and among these may well be included the judicious use of any means tending to alleviate the more or less inevitable suffering of the patient and facilitate the dentist in his work. If these include anæsthetics, etc., to the extent their use is sanctioned by the best authorities, including the recognized schools of dentistry, as necessary, proper and beneficial, in my opinion it is proper to use them, and a dentist would be liable only in case he used them carelessly and ignorantly, so as to amount to malpractice. No hard and fast line where their use must cease can be drawn. It must depend on the generally recognized practice, limited by the necessity of not infringing on the recognized practice of medicine."

You can see by these opinions that there is no legal line drawn beyond which a dentist must not use drugs to assist him in his work unless he treats organic diseases, which he has no desire to do. Some of our good friends may wish to treat a rheumatic diathesis in a case of pyorrhea alveolaris, but this is most decidedly in the field of the physician.

For the ethical side of this question, I have appealed to, and have, the opinions of some of the leading physicians in our city.

Opinions of Medical Men.

Dr. Glenworth R. Butler, says:

"With reference to the question which you asked I believe as follows, premising that the dentist is familiar with the proper dosage, physiological actions, toxic symptoms, and antidotal treatment of the drugs which he proposes to use:

"(a) That the use of morphine, codeine, and cocaine, by mouth or by hypodermic, for their constitutional effects is unwise and indefensible.

"(b) That the conservative use of morphine, codeine, and cocaine by hypodermic or otherwise, in order to produce local anæsthesia for the extraction of teeth or painful dental operations is unobjectionable.

"(c) That the use of phenacetin and the bromides in proper doses in order to quiet extremely nervous patients is permissible.

"(d) That if the patient is the subject of a dental affection dependent upon constitutional conditions, a note should be addressed to the medical adviser, and that if no attention is paid to this, the dentist, if trained in modern methods, is at liberty to use such general treatment (cathartics, anti-rheumatic medication, etc.) as may be required."

Dr. Charles Jewett, says:

"I am sure that the dentist, from the ethical standpoint is right in using drugs or other therapeutical media, directly or indirectly in so far as may be necessary to the care and treatment of the teeth. The spirit of the law too is, I think, in harmony with this version of the matter."

Dr. Geo. MacNaughton, says:

"The duty of a dentist, like that of a physician is to benefit the patients by relieving disagreeable sensations; and I believe that it is perfectly proper for the dentist to administer such drugs or make use of such appliances as will relieve pain and enable the operator to more perfectly perform the mechanical work required."

Drs. Peter V. Burnett and H. E. Street take the affirmative side of this question and agree with the foregoing gentlemen.

Dr. R. G. Eccles' opinion is:

"I can see no reason at present, why medical men should object to the use of necessary remedies internally by competent dentists in treating cases that lie within the legitimate practice of their profession."

Dr. J. M. Winfield, says:

"The best dentists are capable of treating their patients medicinally in certain emergencies, but until their practice becomes a recognized specialty in medicine they should better not do anything to excite the condemnation of the medical profession."

Dr. Walter C. Wood, says:

"Dentists should be privileged to use all drugs locally, whether they have constitutional effects or not, but they should not use them through the stomach or hypodermically for their systemic effects."

Dr. Heber N. Hoople's opinion is:

"Responding to your request to state my view of the ethical limit of the use by dental surgeons of general or constitutional measures, I would state it thus:

"I would assume that the dentist would neither wish nor presume to do more than practice in his own field.

"That premise granted, I would say that he would best be possessed of all knowledge and skill available to give efficiency to his special work.

"Then with such equipment, he ought to have free hand to employ his knowledge and skill in the use of all agents advantageous, helpful and necessary to the efficiency of his dental work, excluding always general diseases and bodily states, a full comprehension of which it would be self-evident to him he could not obtain or legitimately employ in his restricted field. Therefore, I would limit him as I think he would naturally seek to limit himself, to such agents alone constitutionally as will give him a local effect needful to the highest and best work.

A more particular or specific statement would seem to be too difficult to make. I would consider myself bound to stand by the above generalization."

With these opinions of representative men the dental surgeon may feel himself at liberty according to his ability to treat his patients constitutionally as the case may require in his field of work without overstepping his right legally or ethically.

Impressions.

By Dr. I. P. Wilson, Burlington, Iowa.

Read before the Northern Iowa Dental Society at Mason City, September, 1897.

A correct impression is an absolute necessity in securing satisfactory results in the construction of a set of artificial teeth. We must begin right, or we cannot expect to end right.

Doubt should never be entertained regarding this foundation work. An impression that calls from the operator the expression, "I *guess* that will do," should be promptly condemned.

We ought to *know* that it will do before dismissing our patient. When there is doubt there is apprehension from first to last, and when the work is completed and the plate introduced into the mouth, our worst fears are usually realized. A plate that sticks tightly to the mouth does not always mean a well fitting plate. Wax impressions are not reliable. We may secure a fair impression of the palatine surface, but usually the buccal margins are faulty.

Evils of Suction Plates.

A set of teeth made from such an impression with a huge "air-chamber" may be made to adhere so firmly that it can only be removed with difficulty. In such cases I have heard dentists say with an air of triumph, "How is that for a fit?" and the poor deluded patient would think, perhaps, that was a splendid fit. Such a plate cannot be worn with comfort. The sensation ensuing must be similar to that experienced in the process of "cupping." Indeed, the same result is sometimes produced, and I have more than once known of a blister being drawn by this kind of a suction cavity. If the patient has the fortitude to endure this drawing process for a considerable length of time, an abnormal development of tissue will fill the cavity. It is only necessary to have a fair impression of the central part of the roof of the mouth to secure the results referred to above.

In my early practice, more than thirty years ago, I used wax exclusively for taking impressions. I also used large air-chambers; hence I have an experimental knowledge of what I am writing.

I believe that plaster of Paris is used almost exclusively at the present time for full upper sets, while other preparations, such as wax or modelling compound, are still used by some for full under dentures and for all partial sets. In my own practice I use plaster of Paris exclusively for both full and partial plates.

Management of Special Cases.

The condition of the mouth is the first consideration, and should be carefully examined before an impression is taken. If the texture of the gums, the hard palate, and the alveolar ridge are found to be in a normal state, the taking of an impression is greatly simplified. But if there is a sponginess of the anterior portion of the alveolar ridge, with a hard bony structure along the median line, the case becomes more difficult to manage. An impression cup that will pass freely around the gums should be selected. If the arch is high, a little soft wax should be placed along the posterior margin of the cup before introducing the plaster, which should be mixed thick enough to produce slight pressure upon the soft yielding tissues. In some cases we find the anterior portion of the gums as soft and yielding as the muscles of the cheek. If the plaster is mixed too thin, and the impression is taken without any pressure upon these soft parts, the plate, when completed, will rest upon the hard palate, with no support upon the spongy gums. Such a plate will rock because of uneven pressure. The impression should be so taken that the soft as well as the hard tissues will be in a measure unyielding when the dentures are in place. Of course it will not do to force the spongy gums back in taking the impression so that they will

act as a spring upon the plate. Either extreme should be avoided. When the impression is in place the lips should be raised gently, to expel the air that may have been shut in, after which they should be drawn down with sufficient force to mark the folds of mucous membrane in the impression, otherwise they will act as a spring in dislodging the plate.

When there are under-cuts in the gums, care must be taken by some means, to force the plaster into the recesses, and then before crystallization has fully taken place the impression must be removed, which will usually break into a number of pieces, but these may be put together again like a broken dish.

Sandarac varnish will unite the parts perfectly. If the plaster becomes too hard, a knife may be used in cutting grooves and breaking into sections the binding parts.

Taking impressions for partial sets is much more difficult, and an accurate impression is an absolute necessity. An impression taken with any material that will yield or bend without breaking, is unreliable and will result in an ill-fitting plate.

Plaster should be mixed thick enough to hold to the cup when turned upside down. A large number of impression cups of various sizes and forms should be possessed by every dentist.

In some cases we find a bony prominence in the roof of the mouth which is hard and unyielding, and unless provision is made for this objectionable feature of the case, a failure may be expected. Very soft plaster should never be used in taking such impressions, but plaster stiff enough to produce some pressure upon the soft parts involved.

Judicious scraping of the model where the parts are soft or a layer or two of heavy tin foil over the hard parts will help obviate the difficulty.

When the bony prominence does not extend back to the soft palate, the difficulty is easily remedied, by forming a thin suction cavity over the entire bony surface, so the plate will not come in contact with it.

Before taking an impression the mouth should be rinsed thoroughly with cold water, and if the saliva is thick and ropy, salt should be added to the water.

Impressions Without Cups.

It becomes necessary occasionally to do away with an impression cup in partial under sets, especially when any of the anterior teeth are to be supplied. In such cases I frequently take the impression only of the lingual surfaces of the teeth and gums, allowing the plaster to pass into the places of the missing teeth, but not through to the labial side. This may be accomplished by carrying the plaster on a spatula to the desired location. I prefer, however, to take a roll of

wax and press against the lingual surfaces of the gums and teeth, then remove it, and dress it down, forming a deep longitudinal concavity in the wax next to the teeth, which I fill with plaster and put into place against the teeth. Usually the wax will come away from the plaster in removing it from the mouth, but body enough is left in the plaster to push it back into the mouth, frequently breaking it into several pieces, which may be readily glued together. This will give a perfect impression of the parts to which the plate is to come in contact, and the most satisfactory results are obtained.

Central Dental Association of Northern New Jersey.

A regular meeting of the Association was held on Monday evening, March 21st, 1898, in the parlors of Mr. S. Davis, 943 Broad street, Newark, after the usual Association banquet. The president, Dr. F. Edsall Riley, occupied the chair.

Dr. M. L. Rhein, of New York, read a paper (published in this issue) and the following discussion ensued:

Dr. R. M. Sanger. This is a scientific paper, because the writer, in making his deductions gives reasonable grounds for his propositions. He presents to us one idea which seems to me at least to be entirely new. I refer to the theory that the tooth in maturity receives its principal nourishment from the pericemental membrane, and not from the pulp. At a first glance he certainly appears to have a very solid foundation for his theory, but there are some things which come to my mind, which may possibly controvert in a measure the position which he has taken. We are well aware from clinical experience that many pulpless teeth become in time dead; they pass from the condition of being pulpless to that condition where they become truly dead, because of the loss of nourishment which should be supplied by the investing membrane, although there does not seem to be any pathological reason, no disease present, by which that nourishment has been lost; the gums look healthy, the patient seems healthy, and we are filled with amazement when the patient presents himself with, apparently, an alveolar abscess; we find that the tooth is entirely detached from its investing membrane and is ready to be removed, and it is impossible to restore it to a healthy condition. Now this would appear to be a contradiction of Dr. Rhein's theory in regard to the supply of nourishment from the pericemental membrane being all-sufficient for the tooth, and therefore the death of the pulp a matter of choice with us, and having no bearing upon the subsequent nourishment of the tooth.

When Dr. Rhein says that the pulp should not be killed, if it is possible to save it alive, during adolescence, he says what every intelligent

practitioner is fully satisfied is true. When he says that every pulp which has been exposed, irritated and become inflamed should be destroyed, he lays down a doctrine which, as far as I am personally concerned, has been for a long time my practice; because I feel with him that it is unwise to try to save pulps that have become exposed in the teeth of adults.

Dr. Stockton.

It is a very difficult matter to tell just where adolescence ends. How long do we grow? Is puberty the end of development, as stated? Do we not go on in development until we cease entirely to become stronger; there remaining upon the pinnacle a longer or a shorter time and then going down the scale? If that is true, adolescence is not the period. We may go on until we are 40 or 45, which I think is claimed to be the period when we are at our best, when we reach that point from which we are likely, in a few years, to descend; so that it seems to be a fact that the time when puberty would develop is not the time when we should cease to conserve the dental pulp. And yet oftentimes experience seems to be against that. We have capped with the greatest care possible an exposed pulp, we have dismissed our patient, not with confidence but with hope, and for a few days or weeks, perhaps, have anticipated that the patient might visit us again. Time goes on, weeks, months, perhaps years have passed away, and the patient does return, and we find, to our surprise, that after all this time has elapsed, the pulp, conserved and capped with so great care, has come back to us dead. Why does not nature have more healing qualities? Why should she wait all these years and then turn back upon us in the destruction of the pulp? We had reason to hope and believe that we had been successful, and we were not. What was the reason that that pulp remained in that condition for weeks and months and years? You cannot tell, nor I. I wish we could. So, in the light of that experience oftentimes I have said that I would sooner have a pulp dangling upon the end of my nerve broach than to have it in the tooth of the patient; and we are upon that uncertain ground where we cannot say with positiveness which is the best course to pursue. We know that the great Father of Dentistry, as we are sometimes pleased to call Dr. Atkinson, used to tell us that you could take out a portion of the pulp of a tooth and the other part would remain alive. That may have been so years ago, but it does not seem to be so now. Some have gone so far as to say that a portion of the pulp may become putrified, and the rest of it, surrounded with all that putrefaction would remain alive. You and I hardly believe that. When we see, under the best treatment that we can give the patient, when we have carefully capped a pulp and tried to save it, that that pulp will die, we must believe that a pulp must surely die when surrounded with all this putrefaction.

The Doctor's paper is certainly one that is worthy of careful thought; many points in it are very excellent, and one that I think is in a measure new to many of us is the idea that pulps may die from want, not only of nutrition, but from the debilitated condition of the patient. Some of us have gone so far in the past as to say it is impossible to have ulceration unless the pulp is dead. I think that some of our experience goes to show that that was a mistake. Only four weeks ago a patient, who had been in a run down condition for some length of time, visited a dentist with face swollen, which had been pronounced by physicians to be a tumor of some kind that they didn't know anything about, and advised him to consult a specialist. The trouble was cured by the removal of the pulp of the tooth. There was not a sign of abrasion even, much less a cavity, upon that tooth where the trouble was.

Dr. Faught. I have been interested in the paper read by Dr. Rhein and the admirable manner in which he has treated the subject. The idea is not a new one to me. I had the pleasure of listening to a paper written upon this subject in 1896 and read before the Odontological Society in Philadelphia by Prof. D. D. Smith. I think it had been a practice with him long before that date. I know of one case in particular that came under my observation, a man past 50 years of age, where he had devitalized all the teeth, and for this very purpose. It is with him a very common practice, he is a strong advocate of Dr. Rhein's theory, and I believe he is very well satisfied with his experience.

Regarding the destruction of the pulp, and the dependence of the tooth upon the pericemental membrane, that is a matter which at the present time can only be discussed as a theory. Perhaps it ought not to be discussed at all until we have more evidence of actual benefit derived from it. Theoretically it seems to me that there would not be sufficient of the blood supply turned aside to have a very decided effect upon the pericemental membrane. If any effect comes from the turning aside of the blood current, might it not be due to some change in the nervous relationship of the territory, which might lead, perhaps, to excessive nutrition? I am inclined to believe that such results could be due as much to change of nervous relationships as to the turning aside of a certain amount of blood that formerly passed into the pulp chamber.

Dr. Osmun. I think the era of peace and goodwill on earth has about come when Dr. Rhein and I can agree upon any one subject. I do agree with Dr. Rhein in many of the propositions he has put forth tonight. Some fifteen years ago I read a paper before the New Jersey State Society, at Long Branch, on the conservative treatment of the dental pulp, in which I maintained

that, as it is said the only good Indian is a dead Indian, so the only reliable pulp is a dead one, and I have never yet seen reason to change my belief. I will go a little further than Dr. Rhein. He says no pulp in an adolescent tooth should be devitalized. When we find in a child of 12 to 14 years of age, a sixth year molar with the pulp exposed, badly exposed, instead of capping that pulp and keeping it for a week or a month or a year, as he advises, and then have it die when you are not at hand to relieve the trouble, filling the territory with poisonous and putrid matter, I would devitalize and remove it at once and then fill the root, thus anticipating its dissolution by a few months, and avoiding the poisoning of the surrounding tissue at the apex of the root with this putrescent matter. I believe you will get better results by extirpating the pulp and filling the root canals thoroughly at once than you will if you cap the pulp and keep it half alive for a year or two and then have an alveolar abscess as the sequel. That is the only point which I would controvert in Dr. Rhein's practice. It is seldom that I cap a pulp, but sometimes I say, "I guess I will cap this one;" and every time I do that, instead of extirpating it at once, some other fellow does it and I lose my patient.

Dr. Stockton spoke of Dr. Atkinson; you know he did advocate the excision, in some cases, of half or three-quarters of the pulp, leaving that part in the anterior root or the posterior root, as the case might be. I got a letter from Dr. Gillett this morning in which he spoke of a patient that came to him with a sixth year molar, the pulp in the two buccal roots being alive and very sensitive, and the pulp in the palatal root thoroughly dead and suppurating; so you see there can be part of a pulp alive with a dead part adjacent.

I believe the extirpation of the pulp is a sort of intuition that comes to you at times; when the intuition tells you to devitalize a pulp, you do it, and God will bless you and the patient too.

Dr. Ottolengui. In the first place, I want to say that one of the remarks that Dr. Osmun made struck me as being very funny. He told us that story about Dr. Gillett's tooth, where he found the buccal roots sensitive and the other one suppurating, and his deduction was—he was surprised that the living and the dead should be found adjacent. My deduction is that this pulp was not quite dead yet; that is all.

I am not going into details on this subject, but I want to say this, that dentistry needs more than anything else to have formulated and recognized methods of practice; and yet it is ridden by rule and dogma more than medical work is. Some authorities state that the pulp is necessary to the vitality of the tooth, and if a man conceives it to be his

duty to take a living pulp out he is afraid to tell anybody; he carries it on his conscience. It does not make any difference that the tooth does well without the pulp, he feels that he has deprived that patient of something that other men would have saved and that the patient should have; not because he knows that, but simply because he has been told it. Now, gentlemen, what a valuable thing it is going to be if this new doctrine gets to be the rule. Think of the vast number of mysterious toothaches that come to our offices, from our own or some other man's hands, where the patient says: "This tooth aches again, I can't stand it, every now and then it troubles me." You look at such a tooth and you find a beautiful filling in it; you think of the rule, it is a live tooth, you don't see anything the matter with it, and you don't feel authorized to interfere. Now you won't do that any more; you will take the filling out and take the pulp out and the toothache will be cured. I hope this is to be the rule in the future, and that we shall decide for ourselves and not be governed by what our ancestors told us to do. If we feel, from our own observation and experience, that a certain tooth will do better without its pulp than with it, ye gods! let us take it out, and not be afraid to tell our friends that we did it.

Dr. Rhein. Mr. President and Gentlemen: It is very hard for me to say anything in conclusion. I brought this paper over here, thinking to see it sat upon, cut up, most probably butchered. I am simply overwhelmed with the kindness of the reception that it has had. Whatever criticism has been passed upon it has been of a very mild nature. I may say that I do not present this paper as an announcement of any new method of practice of mine. It is a method that has been a matter of study and evolution for the past twelve years at least, and one that I have taught in my lectures to students for the past five years. I was acquainted with the fact that Dr. Smith was, to some extent, an advocate of the principles that I have laid down; I never knew that his ideas were as radical as has been stated by Dr. Faught this evening, but I am very glad to hear that.

Dr. Stockton, in his remarks about the age of puberty, evidently did not quite grasp the part in my paper that referred to that. I did not say in the paper that I considered the age of puberty the time when the beneficence of the pulp ceased. The age of puberty is generally placed between 14 and 18 years. But I said long after the age of puberty had passed—about the age of 25. I laid that down merely in a sort of empirical, dogmatic fashion, in order to make some particular age. I think there are many cases where we may fairly come to the conclusion that at the age of 20 consolidation of the dentine has taken place to a sufficient extent, and in other patients we may find that it does not occur until they reach the age

of 30, or later; but I do not think that anything occurring after the age of 30 will matter, if the points in the paper are substantiated.

The point raised by Dr. Sanger struck me as rather comical. He brought up an illustration of teeth becoming necrosed after the pulps had been removed, as one that appeared to be in contradiction of the conclusion arrived at in the paper. Such a case as that would strike me in just the opposite way, as being exactly in harmony with the proposition that I have endeavored to formulate; and in all the teeth that I have seen of this character, I have found that the pulps were removed very late. I never expect much benefit from removing a dead pulp after it has been lying quiet, or semi-quiet, for ten or fifteen years, and the putrescent matter has had a chance to cause the entire root to become finally necrosed, and that must be the condition in all such teeth as this that he describes. We have, however, seen many cases of pyorrhoea where the teeth have been lost, and when they drop out and you split them open you find living pulps in them.

This doctrine is one that, of course, requires careful investigation to prove the conclusions. My own practice and all my clinical practice has been such as to prove to my satisfaction the theory that the pericementum receives a stimulus when the pulp has been removed from the tooth; and I cannot agree for a moment with the idea enunciated by Dr. Faught that there would not be sufficient blood diverted from the pulp to be of any material assistance to the pericementum. On the contrary, it has been my experience that these pulps are nothing less than highway robbers of the pericemental blood; they take more than the share they should have, because if you stop to think of this condition, where we get rapid consolidation of the pulp canal—those cases where we get severe neuralgia, and all those conditions where the odontoblastic layer is being worked to great activity, as we frequently see in advanced age; this consolidation of the interior of the root canal in late life cannot proceed without a great deal of blood being brought to that part.

With reference to Dr. Osmun's remarks, to a certain extent I agree with what he says about devitalizing the teeth of adolescents. I have lost many a patient through endeavoring to save the pulp in the tooth of an adolescent; I have predicted the loss of the patient, but I have made the endeavor, on the principle I have enunciated; and when I lose these patients, I lose them not because I attempted to conserve the pulp of the tooth, but because the patients failed to follow the directions that I gave them, not paying proper and intelligent attention to what I told them, or the parents or guardian of the patient. I do not care enough for the retention of any such patients to change my practice from any motive of gain, but I recognize the fact that, from selfish motives, if we consider

the value of our practice, the proper thing to do would be to devitalize the pulps in children's teeth in some cases. I feel this way about it, that that is the age when the dentine is being consolidated, and if we can give it a chance and encourage such consolidation it is our duty to do so. My invariable rule in such cases is to keep such teeth under such constant or frequent observation that the first intimation of irritation of the pulp can be observed, and if we see that it is absolutely hopeless to retain the pulp, to remove it. I have taken out many pulps in children's teeth, after conserving them for three years, two years, six months, or, perhaps, two weeks; cases in which the patient has intelligently followed my directions, and I feel that they have been benefited by such conservation of the pulp, for however limited a period of time. Sometimes, when the patient has paid too little attention to my directions, or forgotten them entirely, I have found the pulp dead. I do not feel that I am to blame in such cases as that, if the patients do not pay sufficient attention to the directions given to them.

I want to say further to Dr. Osmun that I make a distinction between devitalizing a pulp and extirpating it. A great deal of talk has been had about the devitalization of teeth this evening. I remember the time when we amputated portions of the pulp, and I to-day honor the teaching of Dr. Atkinson in that respect as much as I did at that time. I know that I have successfully preserved the life of many pulps, treated in that way, and I have not the slightest doubt that I could preserve the life of many more at the present time if I thought there was any benefit in it. I feel, however, and that is a point that I tried to make evident in my paper, that the conditions under which we practice the removal of pulps, and the treatment and filling of such roots after the removal of the pulp, have been greatly improved since the days of Dr. Atkinson, and that gives us our warrant for such a radical change of practice as I have outlined this evening—and that is what started me originally to change my method of practice in this respect. That scientific root filling has become a fixed and accurate thing in the dental office there is no question.

Dr. J. Foster Flagg
To the Central Dental Society of Northern New Jersey.

Gentlemen, in greeting you tonight I would say, that while I have not brought you any matter to discuss, I have brought you that which it may be well to think about. There are things which open discussion, but when it is *possible* for an American Dental Association Committee to offer

for discussion the question as to "whether amalgam is a blessing or a curse to humanity," it seems a matter *to think about*, while it it would be worse than child's play to discuss it.

I have come to talk to you about amalgams; the three specific classes of amalgam—not to ask for their discussion, but simply to tell about them, and incidentally to speak of what is, even yet, being constantly offered as "reliable," "new" and "best."

Use of Napkins. Also to speak to you (and illustrate by this model) of the art of napkining—an art which had I not taught it, while connected with the Philadelphia Dental College, I think would be, by this time, almost a "lost art"—but which in the hands of quite a number of graduates, is being of great comfort and service to them and to their patients; and I would say, in behalf of plastic operators, that *we use napkins.*

I suppose some of you have read the last work on operative dentistry. In that work five little paragraphs are given to napkining, and it it taught that napkins should be eight inches *square* and that the corners should be turned over and folded to the center of the hypothenuse!

Don't you think dental education is coming up? The teaching then is to take the square napkin with its hypothenuse and place it, in some way, in the mouth, and if work is to be done in a lower tooth, the napkin, with bibulous paper, is placed and held with the index finger or with a dam clamp!

That is the napkining of the latest "Text-Book," and that is better teaching than is given for plastic work in the chapters on plastics.

Lining Cavities with Cement. Before you, at this time, I would like to put it on record that "lining" and "guarding" were both first suggested and practiced by me. That the first tooth "lined" for the purpose of introducing a filling into a "lined" tooth was done in 1862.

It was "lined" with oxychloride of zinc, and a poor gold filling lasted twenty-two years in that "lined" cavity where three good gold fillings had failed in fifteen years before.

I wish to say that I commenced systematic "guarding" with amalgam and gutta percha in 1865, and I refer to this because in one of the best chapters of that Text-Book, the recurrence of decay at the cervical margin is said to be "not infrequently caused by imperfect adaptation of the filling." The old idea of defective manipulation. "Not infrequently" that is the cause of recurring decay at the cervical margin. What is the other cause? Is there only one?

A Voice. Structural weakness, Doctor.

Dr. Flagg.

Structural weakness. I should say so, and "guarding" is to antagonize that. Why not say so, and properly credit the means for doing so? That's "New Departure!"

Structural weakness! What is the record of our "composite" and "combination" filling of today? It is that they are the best work that can be done for the saving of frail, poor, soft structural teeth.

Dr. Greene Black tells us that all teeth are composed of the same relative proportions of organic and inorganic substances. Wonderful! I will ask, fellow Hornets, if you ever heard of more than one analysis of enamel? Not poor enamel, not good enamel, but enamel. Who has ever heard of more than one analysis of dentine? Who has ever heard of more than one analysis of cementum. These analyses were made in the old days of Fox, by Pepys, almost a hundred years ago? And it has always been so until by some hocus-pocus Dr. Greene Black found that dentistry thought (?) that hard teeth had an excess of inorganics and that soft teeth had an excess of organics! It seems strange that he did not recognize that soft teeth have been called "chalky" from time immemorial, and that they have been called so because dentistry thought that chalk is an organic material!

Napkin Versus Rubber Dam.

To return to "napkining." In the use of plastics, I have had but one use for rubber dam, and that is during the "whitening" of a discolored tooth. For every other work, we keep the mouth sufficiently dry with napkins. They are sufficient. Do you remember that old story about "sufficient?" It was of two elderly ladies walking near Boston. They saw a stone leaning over by the roadside and on it was inscribed "I'm from Boston." When they read it, the elder said sweetly, "Poor forgotten creature, no name, but what a touching epitaph; I'm from Boston; so simple, and yet so sufficient."

So with our use of napkins. But the question is asked: What do you do when the mouth is so wet that you cannot keep it dry. What a question. If in reading you meet a sentence in Arabic, what do you do with it? You don't read it; so when we meet a mouth that cannot be kept dry, we work, as I often did in California, in the wet. And here, I would say, comes knowledge of plastic working, and it is marvelous what can thus be done—comfortable, durable and satisfactory.

We can work in the wet with plastics, and save teeth. Who among us tonight, that has not found teeth so deeply decayed away under the gum, that the rubber dam could not be applied, and yet they were very important teeth? If the dam could not be put on, would you not prepare as best you could and fill, not with any so-called "best" amalgam,

but with amalgam made from filings of coin or coin alloy? A first class submarine.

You would at least fill the cavity partly full—for what? That you might put on the rubber dam and then fill the other part? Is that sense?

And now about "napkining." We have here the large illustrative napkin in the mouth (of model) made of this sort of napkin stuff. It is called "innerlining" or "imitation butchers' linen," but it is made of cotton. Napkins are made two and one-half inches wide and fifteen inches long—this width and length are found, practically, most desirable. A yard of stuff costs nine cents, and will make about thirty-two napkins. They cost about one-fourth of a cent each, or even much less, for, frequently in using, for examinations or small fillings, a half napkin will suffice.

Napkins are used but once, as they cost far less than would the laundrying. After washing out the "dressing," the material is cut into napkin sizes, and is ironed by folding in the middle, and repeating this, thus giving four equal divisions in its length.

At this point the speaker saying to his manikin, "Will you open your mouth, please," the model opened its mouth, and some illustrations were given of its utilization in lectures, such as cotton wedging; indications given by "health line;" making arsenical application; entering pulp cavities and canals; placing "guards;" "lining" cavities; making "composite" and "combination" fillings, etc., as shown to a class.

Dr. Flagg next demonstrated the five modes of utilizing the napkin; 1st, right upper; 2d, left upper; 3d, right lower; 4th, left lower; 5th, upper anterior teeth; making the points that a properly placed napkin "stays put!" that the patient can close and open the mouth if desired; that continuous dryness can be maintained; that moist napkins can be replaced with dry ones without interfering with work, and that all this can be done with perfect comfort and great celerity. That much care must be given to moistening napkins by syringe and tepid water before removing them, that no infliction to mucous membrane be given, and that for an expert, and as associated with plastic work, they were much preferable to rubber dam, to both operator and patient.

No attempt can be made to describe, except at great length and fully illustrated, the work of napkining; in fact it should be seen to be properly appreciated.

He concluded this part of his remarks by saying that, as with everything in dental work, the art of napkining was only to be attained by practice, and that the reason for his being "expert" was because he had napkined many more than twenty thousand times!

Second District Dental Society.

February Meeting.

Discussion of Paper by Dr. H. Clay Ferris.

Dr. Ash. When I read the notice that the legal and ethical limit of constitutional treatment in dentistry would be the subject for this evening, it seemed to me that any man is entitled to use any drug, in any way, of which he understands the properties, physical and otherwise, their antidotal remedies, etc. If a man thoroughly understands a drug and all its possible effects, there is no reason in the world why he should not use it, and I feel very sure that the best men in the medical profession would uphold such a man if he were brought before a jury and it could be shown that he was thoroughly conversant with all the different phases of the drug used.

The President. We have with us one of our members who is an M.D., as well as a D.D.S. Unquestionably he administers internal remedies. I would call upon Dr. Smith.

Dr. Smith. The paper has certainly shown a great deal of thought, and the Doctor has called upon eminent men, getting their opinions. I believe that a man has a right to, and should, administer such remedies as he is familiar with. As to the use of cocaine for the extraction of teeth, I am a crank on that subject. I think that the dentist has no right whatever to inject cocaine in the gum for extraction or for any other purpose.

Dr. Hill. In this question of remedies and constitutional treatment, the point lies right here: In what you call generally constitutional treatment, you ought to know as much about the condition of your patient, if not more, than you do about the medicine you give him. There are times and conditions when a person will receive certain medicines and no harm comes. There are other times and conditions when it is entirely beyond the province of a dentist to ask the questions which are frequently necessary to decide what to give. That has always been my view. In the local treatment of arsenic and morphine, as we use them, we are right; but when you begin dosing a person in any way, with any medicine, without knowing the condition of that person, you are going beyond your limit. That is the province of the physician—not of the dentist. That is the way I have always thought of it, and all this talk that dentists should know so much

is nonsense. They do not know it—they cannot know it—not with the ordinary and customary intelligence which is demanded from the physician, because they have not the practice. They do not use those remedies, or they use them so rarely that they know nothing about the effect practically that those medicines have upon different persons.

Dr. O'Brien. I would like to say that as far as I am concerned, I think a dentist who treats a patient constitutionally is looking for trouble, and as Dr. Hill says, a great many of them have this peculiar idiosyncrasy.

I had a patient come in with facial neuralgia. She had no cavity in her teeth, nothing was wrong that I could see, and she wanted to know if there was anything she could take. I said, "Yes; six grains of quinine and a hot foot bath"—simple remedies. A day or two after, I saw her and asked, "How did you get along with your neuralgia?" She replied, "That quinine made me deathly sick; I had to send out and get my physician, and he worked with me all night."

Dr. Hill. I wish this society would endorse Dr. Smith's idea of dentists injecting cocaine. We ought to endorse that view, and condemn the practice of injecting cocaine.

Dr. Leroy. If I may have the privilege of your floor for a few minutes, I wish to reiterate what Dr. Hill has just said. We cannot do anything more injurious to the patient's welfare than to inject cocaine into the circulation, as it must go by hypodermic injection. I do not believe even a physician will take that risk—to inject into the system a remedy which is so peculiar in its action. He may use it as a spray, or a local application to the epithelial surfaces of the body, without forcing it into the circulation, where it will go into the capillaries and be carried almost immediately to the venous circulation and to the heart. It is a heart depressor, as we know.

Dr. Wickes. I have some pronounced views in regard to constitutional treatment, and have been greatly pleased by the paper that has been read. I should feel very sorry to have to give up the internal administration of drugs occasionally. I will just mention a case that came to me recently. A lady, a pregnant woman, had been going to her physician a couple of weeks seeking relief from severe toothache. He had done all he could for her, and finally said: "I think you should go to a dentist. There is one next door; go in and see him." I looked at her teeth, and there were several that had bad cavities in them, but her physician was unwilling that she should have them extracted at that time. I carefully and thoroughly cleansed the cavities of food and loose decay, and placed in them

a soothing preparation and gave her some tablets of acetanilid, asking her first if her circulation was good, and being assured that it was, I gave her four 5-grain tablets of the acetanilid, instructing her to take one every hour until she had relief.

She came in two weeks after and asserted that she had not had a particle of pain since that time, and that one of those tablets had given her instantaneous relief.

I have for the past three years used a great many of the acetanilid tablets and phenacetine, with great benefit, and many persons have I relieved of toothache by their use.

In the treatment of periostitis and pericementitis, by the use of chloride of ammonia and iodide of potassium, I have often obtained remarkable success. I feel that I could not do justice to my patients without occasionally using some internal medication, and I believe that the man who does not is going to be frequently handicapped, because people are going to compare his failure to give relief with the man who does give relief by the judicious use of internal medicines.

Dr. Smith. I would like to add a word. The Doctor has spoken of the use of acetanilid. While that is very good, I think phenacetine much safer—in fact, the safest of all. In these cases I usually prescribe phenacetine, five-grain doses, with a third of a grain of digitalis, the digitalis doing away with the depressing effect of the phenacetine, and I get very good results. Five grains every three hours until three doses have been taken, not to renew the dose until several hours afterwards.

The President. A little incident happened to me a night or two ago. About eleven o'clock in the evening, I was called out by a lady in the neighborhood, the wife of a friend of mine. She had acute apical pericementitis, as I was able to judge after examining the tooth, and there was nothing I could possibly do at the time. There was a dead pulp unquestionably, and it was almost impossible, under these circumstances, to have done anything for her then. Something had to be done, however, to temporarily relieve the pain, so I prescribed for her ten grains of antikamnia, five-grain tablets, every two hours. She passed a very comfortable evening. She certainly would have had a very bad time without something of the kind. Next day she came down to my office and I relieved the trouble.

We know that our text-books are full of prescriptions, and our dental colleges are teaching students how to use remedies, as they are necessary in our profession. I think that there is no reason, if we understand that portion of medicine as it relates to our profession, why we should not use it.

Dr. Ferris. It is my opinion that the dentists must do more than simply plug gold into teeth if they are to handle nervous temperaments. They must do something to control these people, so that they can do their work to better advantage. Now that we are commencing to be more careful with every individual tooth, particularly in its filling, with more nervous temperaments it is sometimes almost impossible to work, and without medication the patient must have poor work done for him. With the assistance of these drugs that have been mentioned by the gentlemen tonight, I derive great benefit. Whenever I have a hyperaesthetic temperament to deal with, I administer one of the coal-tar products, a product that I know will have no injurious constitutional effect. The drug itself, which is practically the active principle of hops, has a quieting effect upon the nervous system, and ten grains of ammonol will, in ten or fifteen minutes, put the shaking patient in a very quiet state.

In answer to Dr. Hill's criticism, I would state that the nose and throat specialists are supposed not to treat their patients constitutionally, and they do not do so; but they do build their patients up physically before the operation, in order to be able to operate. They operate upon practically the same nervous system that we do, and they have the same objection taken to their operations. They use constitutional treatment, and they are medical men—medical graduates. We have been divorced from the regular medical profession, but we are specialists in medicine, and it is my estimation that it is only a short time when no dentist will graduate from college without having the degree of M.D. attached to his name.

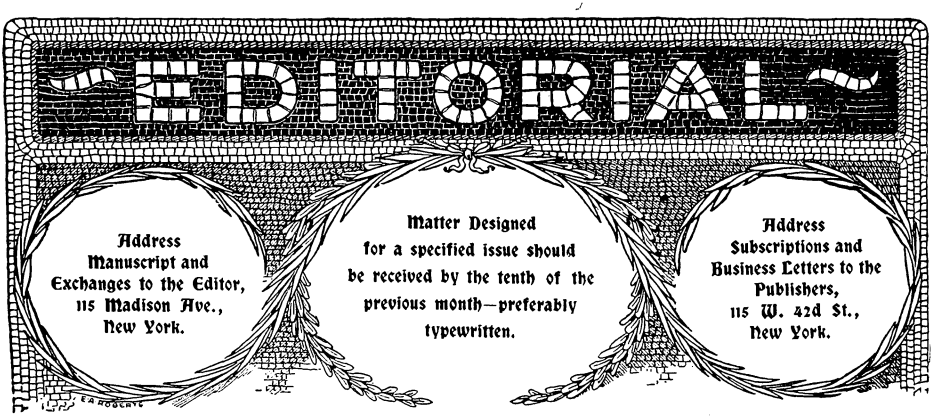
Dr. Wickes. I think we owe Dr. Ferris a vote of thanks for his able paper, and I quite agree with several of the gentlemen who have made remarks regarding the constitutional treatment. I have used the phenacetine Dr. Smith speaks of, and the antikamnia which the President has mentioned, and in regard to the cocaine, I quite agree with Dr. Smith. I do not think it is anything that dentists should use in making hypodermic injections, but I have had occasion to notice that there is a great deal of it used. I have had patients come into my office very often to have extracting done, and they say they would rather have cocaine than gas. They say Dr. So-and-so injects cocaine, and they want to know if I could do the same thing. I have never made any injection of cocaine.

Dr. Smith. I only mentioned the cocaine because I injected it when it was first made use of, and with great success, until I had two very serious cases, that not only frightened me thoroughly, but also threatened to get me into a

great deal of trouble. We cannot tell when we jab a needle into the gum what superficial vessel may be penetrated, and if the dentists want to keep out of trouble, they should better not inject cocaine.

Dr. Ferris. In answering this, I would say I use cocaine, morphine and sulphate of atropine almost daily. I use the drug because I think it is demanded. If a physician refuses to administer a drug because he knows that it has a dangerous action upon the general system, I think that he is not a true physician. If I can get something to supply the place of this anaesthetic, I would be pleased to take hold of it, if it had not the same constitutional effect. The drugs that I use are: cocaine, ¼of a grain, morphine, ¼ of a grain, sulphate of atropine, 1-250. I add to that 60 minims of distilled water which has been rendered antiseptic with carbolic acid, and of that 60 minims, I inject probably 10 minims hypodermically.

You do not find many fatal cases from the administration of cocaine reported in dental publications. I think that any drug, even cocaine, as dangerous as it seems to be, can be controlled. It can be handled with care, and even if cases do occur which result unfavorably, that should not prevent its use. Of course a man must use his skill, and must use some thought when administering the drug. He would not administer the same dose to every patient. Although I have stated a certain dose, I do not always administer the same, and I think it is the duty of the dentist to the patient to use everything in his power to relieve pain.



The Latest in Dental Patents.

It is probably known to some few of the dentists of this country that the editor of this magazine has been for several months acting as a committee with the object of obtaining an amendment to the patent laws of the country, restrictive of a certain class of dental patents. It has been explained again and again that the objectionable patent is the patent on a method of dental practice. Can our readers imagine the surprise occasioned by the receipt of the following letter?

DR. OTTOLENGUI.

Dear Sir:—I have just read an article in the May number of the *Cosmos* by Dr. Lowry, of Kansas City, describing a method of filling teeth that to him was new. I have been doing that for a number of years and have patented an improvement on that method. It consists of a certain kind of cement for a base, then certain shaped strips of gold inserted into the base with the ends left protruding to be welded into the outer covering of gold, thus forming a solid anchor for the filling. Now my idea is to get up an outfit consisting of the cement, gold anchors and certain instruments that I think indispensable, and sell to dentists, giving instructions at the same time, etc. I write you knowing that you will appreciate all the advantages of this method. I hope you are not too prejudiced against patents to put this before the Consolidated Dental Manufacturing Company, as I would like to get them to handle the outfits. I understand in your book "Methods of Filling Teeth" (1892) there is a description similar to the article in the *Cosmos*.

Respectfully,

W. F. DAVISON, Richmond, Va.

Upon receipt of this letter a copy of the patent was obtained, and will be found to be intensely interesting reading at this time. It is therefore herewith reproduced.

United States Patent Office.

William F. Davison, of Richmond, Virginia.

Tooth-Fillings.

Specification forming part of Letters Patent No. 603,179, dated April 26, 1898.

Application filed November 9, 1897, Serial No. 657,921. (No specimens.)

To all whom it may concern:

Be it known that I, William Ferdinand Davison, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Tooth-Fillings, of which the following is a specification.

The object of the invention is to provide a simple and effective tooth-filling which answers all the requirements of a perfect filling, such as no other known process possesses, the filled tooth having all the advantages of a tooth filled with gold or other metal, as well as additional advantages.

In filling teeth with gold as practiced at present the entire cavity is filled with the gold foil or pellets of cohesive gold by steps so well known as to need no description.

The mode of practicing my invention is as follows: The cavity is first prepared in the usual manner and then nearly filled with the cement. While the cement is yet plastic, I insert gold therein in some form and then allow the cement to harden. The exposed surface of this firmly-seated gold will thus constitute an anchor to which the outer filling of gold may be applied in the usual manner. The anchor thus described may be formed by a series of gold pins or posts seated in the cement with a layer of cohesive gold pellets or foil condensed over the cement and between the pins or posts, which are then bent down over the cohesive layer thus formed. The outer filling of gold may then be applied in the ordinary manner.

If preferred, the anchor may be formed of a single tubular post or ring embedded in the cement and projecting far enough beyond to engage the outer filling of gold.

Another manner of carrying out my invention and forming the foundation for the outer filling is to insert ordinary gold pellets into the plastic cement and packing them firmly around the cavity under the enamel. After the cement has hardened the anchor thus formed will form a surface to which the outer gold filling may be applied.

My invention, in other words, includes the inserting of gold anchors into the soft cement, allowing the same to harden and thus form a firm and solid foundation for the outer gold filling. The gold posts, screws, pins, pellets, or other anchors will hold firmly in the cement and weld into the outer filling of gold that is applied after the cement has hardened.

(Here follows a description of the illustrations filed with the claim.)

In conclusion I would state that my process possesses the following advantages over that usually followed:

First. Security of retention is absolutely assured.

Second. Frail teeth may be saved that cannot receive a solid-metal filling, the cement strengthening the frail walls.

Third. Children's teeth and other teeth of a soft nature may be effectively filled and saved.

Fourth. A firm solid base or foundation is formed for building on gold to restore lost-tooth structure.

Fifth. An absolute waterproof joint is formed, thus avoiding all leakage.

Sixth. Less time is required for perfect filling.

Seventh. Less gold is required.

Eighth. A non-conductor is between the metal and dentine, thus assuring a comfortable filling in deep cavities.

Ninth. Cavities may be filled that are inaccessible for the old way.

Tenth. No retaining-points are necessary and less excavating is required, as the cement holds more firmly than metal.

In practice I prefer to furnish the anchorage in the form of strips or posts. It may be by separate posts, as shown in Fig. 1, or by slitting the tube B' (shown in Fig. 5) by scissors or otherwise to form the separate strips. In the use of such construction after the cement has hardened, I supply the cohesive gold from time to time and successively bend down and weld in the posts until the filling is finally completed.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A filling composed of cement for its base, strips having an anchorage in said base and gold over the cement and pressed or welded into union with the ends of said strips substantially as described.

WILLIAM F. DAVISON.

Witnesses:

SOLON C. KEMON,

PERRY B. TURPIN.

One point of interest in the letter is the reference to the article by Dr. Lowry, printed in the May *Cosmos*, because it so happens that this same article, or one similar in tenor, was offered to ITEMS OF INTEREST and was eventually declined because the author was unwilling to omit the paragraph in which he says: "The method above described is new so far as I know, with reference to gold, but has been previously advo-

cated with reference to amalgam." A paragraph similar to the above, if not exactly the same, was in the article submitted by Dr. Lowry, and his attention was called to the fact that the method "with reference to gold" was not by any means new; that in fact it had been described and even illustrated in the *Cosmos* and subsequently in the work "Methods of Filling Teeth" as early as 1892.

This allusion is made, not in criticism of Dr. Lowry, who has chosen to overlook the records of our literature, but to make the point that such was the "prejudice" of the editor of this magazine that he was unwilling to permit a writer to claim as original with himself what had long ago been announced by others; for besides the descriptions of the method above mentioned, it is a well known fact that Dr. Reese, of Brooklyn, gave clinical demonstrations of this method ten or more years prior to 1892. Indeed it is probable that Dr. Reese was the originator, because for years in New York and vicinity this was known as the "Reese Method."

Now if a mere claim for originality could not be granted to Dr. Lowry, how can we be so "unprejudiced" as commend Dr. Davison for taking out such a patent, especially as he has the naivety to admit in the above letter that he is aware of the records? Perhaps he will claim that his is an improved method, but this could never be substantiated in court. Without hesitation it may be premised that this patent is as invalid, as it ought to be illegal. If by some wild stretch of the imagination it could be admitted that there is some detail which is original, nevertheless attention is called to the fact that it is no such detail which is patented. The claim is for the method in its entirety, and assuredly many of the details described in the method are old and familiar to thousands of dentists. Read the lines from 15 to 20. Is that original with the patentee? The language immediately following describes nothing new. From line 27 to 31 we find described *exactly* the original "Reese Method," on which now some fifteen or more years later we find a patent granted to Dr. Davison.

And yet we are told in certain quarters that "no such patents could be granted." Well, here is one fresh from the griddle as it were. Here is one issued two or three weeks after the Senate Committee on Patents had granted a hearing to our Committee in reference to our appeal against such patents.

It is of interest to know the use to which Dr. Davison intends to put his patent. He informs us that he will sell an outfit for doing this class of work. But can he not see that if his outfit includes a good cement, some good gold, several useful instruments, and is properly advertised, that he can make sales entirely regardless of his patent? In fact that his patent will not aid him to dispose of a single outfit? Even though it were valid, *it protects the method, not the materials.* His only chance for obtaining revenue from his patent will be to notify dentists that they cannot hereafter fill teeth with gold, placing phosphate in the cavity first and sticking the gold in while the cement is still soft. He now holds a patent right to that method, and may monopolize it, exacting royalty from all dentists who infringe; at least he may do this until his patent is tested in court and declared invalid.

And it is because the patent office grants such patents, conveying such rights, that the profession of this country now appeal to Congress for an abatement of this foul injustice.

Our Bill in the House.

The bill amending the patent laws, so as to restrict the granting of patents on methods of medical and dental practice has now been introduced in the House of Representatives. On April 27th, Mr. J. M. Mitchell, of New York, introduced the same bill as that which had been previously introduced in the Senate by Senator Platt, also of New York. The House bill is numbered, **H. R. 10127.** It was referred to the House Committee on Patents. This committee will shortly grant a hearing on the bill, after which it is hoped that early action will be taken. It will be of immense advantage at this time if dentists throughout the country will write *immediately* to members of the House Committee urging favorable action. The members of the committee are as follows:

House Patent Committee.

Josiah D. Hicks, of Pennsylvania.
Edward Sauerhering, of Wisconsin.
Winfield S. Kerr, of Ohio.

John M. Mitchell, of New York.
Walter Reeves, of Illinois.
William C. Lovering, of Massachusetts.
James H. Davidson, of Wisconsin.
William L. Ward, of New York.
William Sulzer, of New York.
Champ Clark, of Missouri.
Thomas Y. Fitzpatrick, of Kentucky.
James R. Campbell, of Illinois.
John N. Stephens, of Texas.

PROMENADE, FRANKFORT-ON-MAIN.

Office and Laboratory

Dental Office of Dr. Robert Marcus, Frankfort-on-Main, Germany.

It gives me great pleasure to comply with the request of Mr. George Randorf, to give him a description, with illustrations, of my office, for publication in ITEMS OF INTEREST, as I have always found great pleasure in reading similar articles in the ITEMS.

I have seen the offices of some of the leading dentists of Germany, Switzerland, and Austria-Hungary, some of them most luxuriantly and others very plainly furnished. Everywhere I was able to learn something, and I saw many an insignificant detail which proved of great usefulness to me later on.

The principal requirements of a dental office are good light and good air, and it is to be regretted that so many sin against this. My professional rooms have north light; there is no *vis a vis* from the windows, but everywhere a large open space. The air is the best possible, and a view is to be had of the splendid "Promenade" of Frankfort, directly opposite my house. I live on the first floor of the corner house (where in the illustrations the white signs appear). At a distance of only six minutes is the principal railway depot of Frankfort, celebrated for its beauty. The location of my house is exceedingly favorable; situated, on the one hand, in the very heart of the business portion of the city, it enjoys on the other quiet and a very beautiful view. The

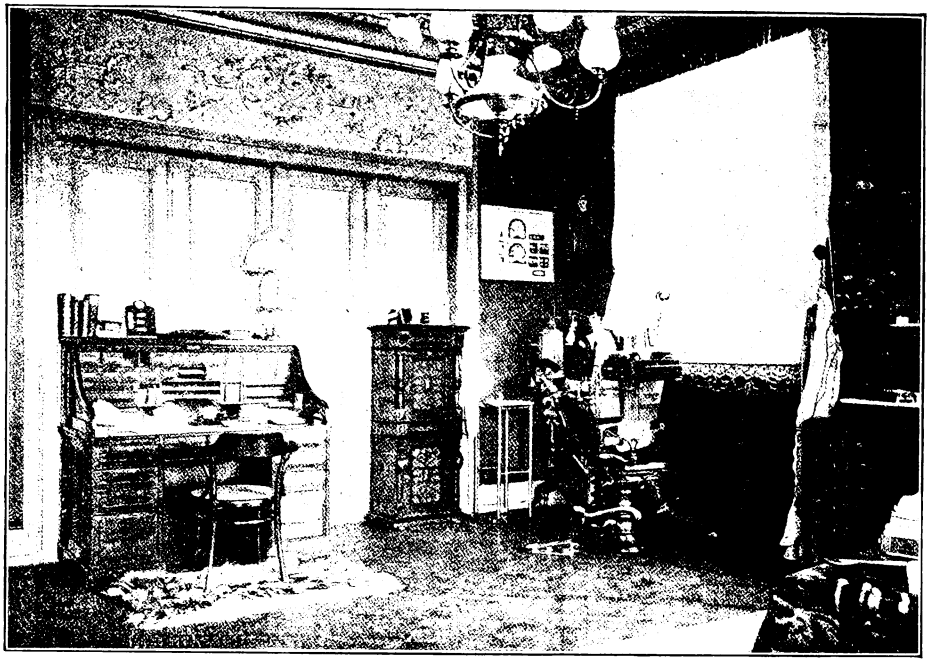


FIG. 3.

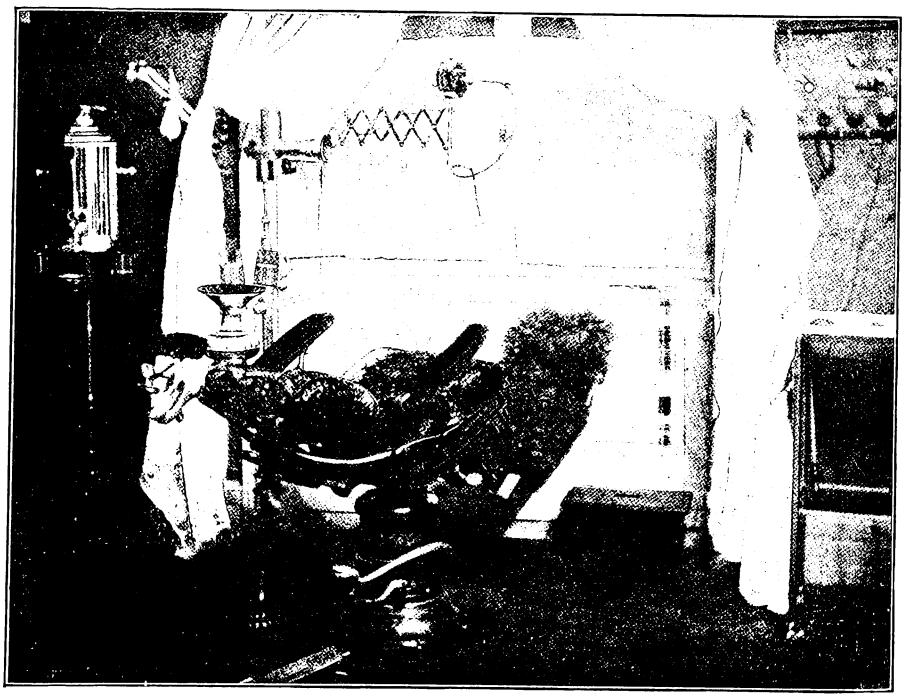


FIG. 4.

suite itself consists of seven large rooms, the largest of which is my operating room. Views of it are given in illustrations 3, 4 and 10.

The electrical apparatus connects with the street (intermittent) current and is very satisfactory. For cataphoresis, however, I get the current from thirty Leclanche cells. For the last year I have particularly studied the application of cataphoresis, and have instituted minute and practical researches, with the result that, in my opinion, cataphoresis is

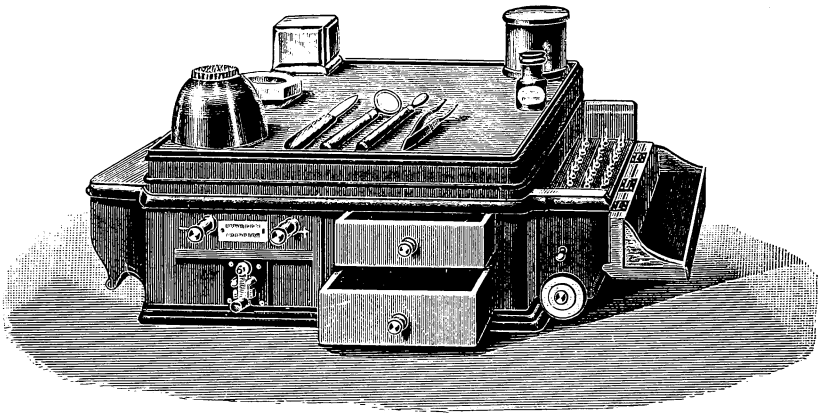


FIG. 5.

applied much too little in dentistry. I have obtained very good results with sensitive dentine, as well as with extractions, treatment of periostitis, etc., and have had only a few failures. I use a solution of cocaine

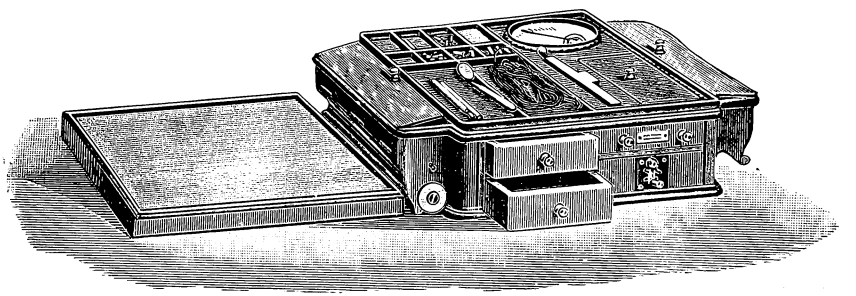


FIG. 6.

hydrojodicum, menthol, vasogen. This solution is non-irritant, anæsthetic and antiseptic. I give the cocaine hydrojodicum the preference to the cocaine hydrochlorate, as with the former a jodic action can be obtained which often shows astonishing results. For further particulars of my experience, see September number of "Zahnärztliche Rundschau,"

and "Deutsche Monatsschrift für Zahnheilkunde." My cataphoric apparatus was made according to my directions and is very practical. Rheostat, galvanometer, etc., have been placed in a Holmes table. Assistance is rendered superfluous, as either the patient himself or the dentist can operate the rheostat. Fig. 5 shows the table when in general use, without application of cataphoresis. If cataphoresis is to be applied the cover is removed, as we see in Fig. 6. To replace the two large drawers in which the rheostat has been placed, there have been provided on the plate, ten partitions for the reception of excavators, probes, mirrors, etc., as well as the complete instrumental outfit for cataphoresis, as electrode buttons, holders, gum electrodes, cord, bracelet, etc. The galvanometer is easily watched and the rheostat readily manipulated.

In Figs. 5 and 6 can also be seen, on the outside of the drawers, the poles for obtaining the current and a device for connecting and dis-

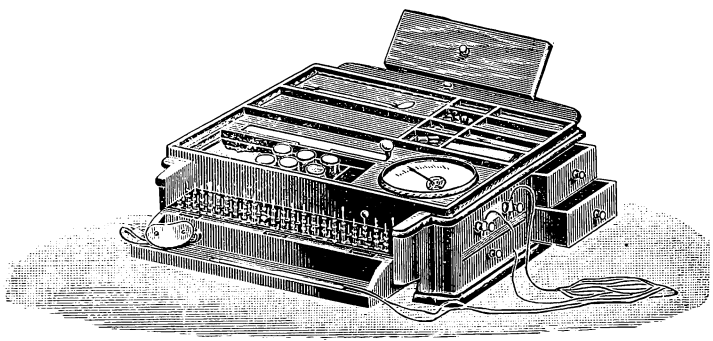


FIG. 7.

connecting. In Fig. 7 a second cover has been removed, and three large, deep drawers can be seen—the middle one of which contains six medicine bottles. My cataphoric outfit has been patented in Germany. The furniture of my operating room is practical and elegant, but the other rooms are plainly furnished.

Fig. 8 shows a corner of my laboratory, where a large part of my supplies, as cement, etc., are prepared. Upon the table stands the sterilizing apparatus, for which gas is used as fuel. All instruments, immediately after use, are boiled for about ten minutes in a two per cent. solution of soda, and are generally not used again the same day. Beside the sterilizing apparatus is a stand with a vessel for cooling the boiled instruments. The stand has rubber rolls and is taken into the operating room before use.

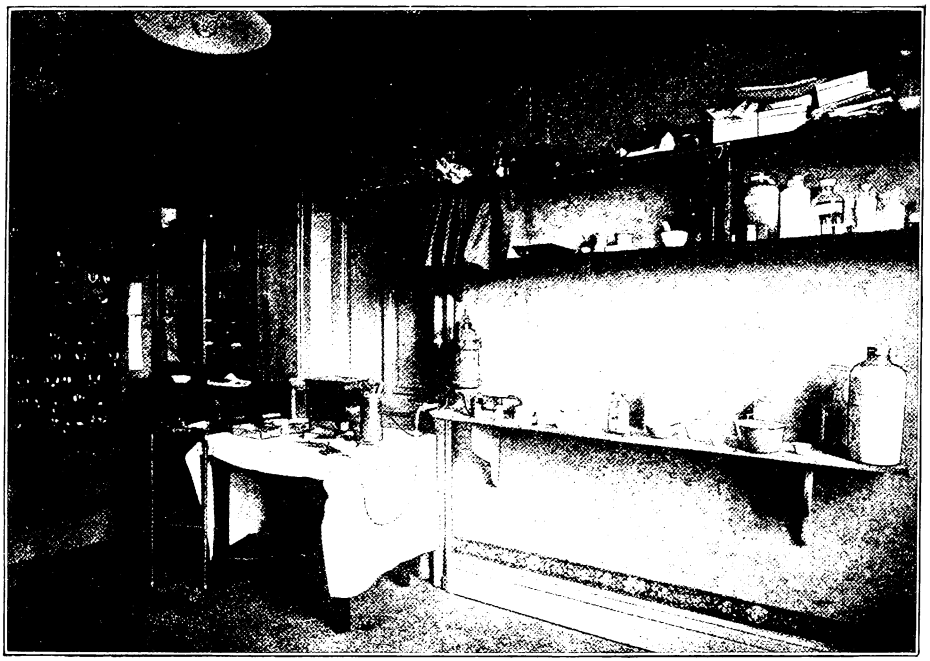


FIG. 8.

FIG. 9.

Fig. 9 shows a part of my waiting room furnished in plain style. Especial care is exercised in always furnishing good, useful, and varied reading matter in the waiting room. Part of the photographic views

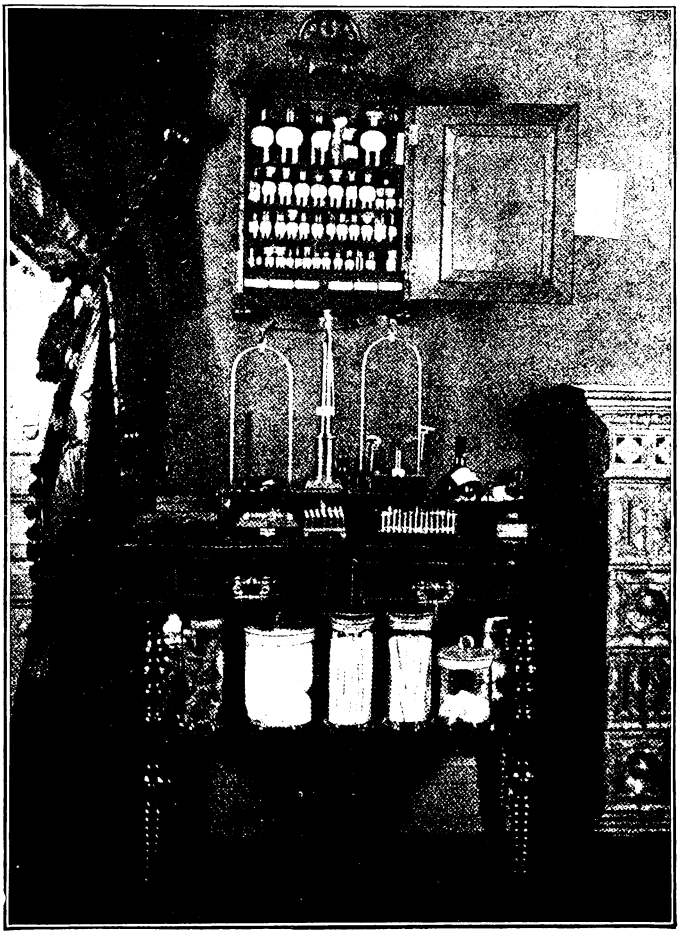
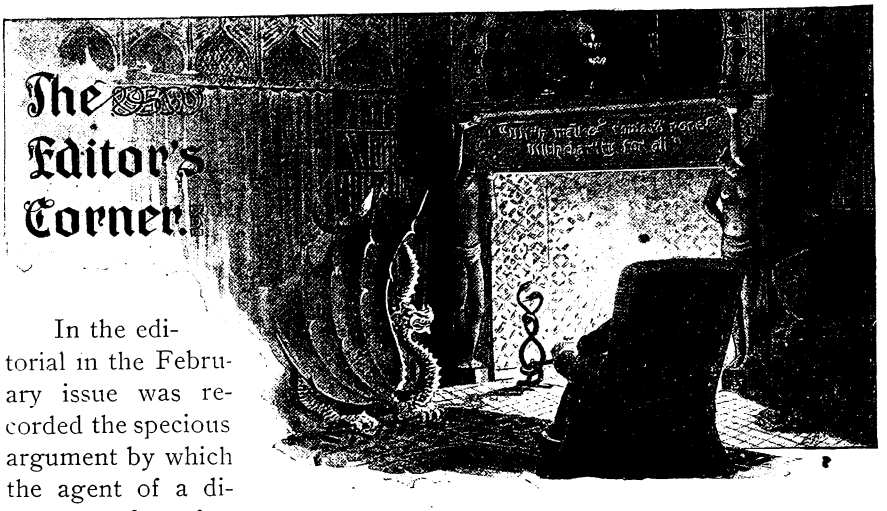


Fig. 10.

have been taken by myself. The furnishings are, for the greater part, from the well known and reliable firm of George Poulson, Hamburg. The firm of C. Ash has furnished me with excellent drilling engines, for both foot and motor power.



In the editorial in the February issue was recorded the specious argument by which the agent of a directory of professional men endeavored to lure the unwary (and sometimes the wary) ethical dentist to "try a little quiet advertising." The names of the gentlemen who parted with five dollars apiece for the privilege of being "listed" among the "leading dentists" of the metropolis, will probably never be known. The *New York Herald* recently exposed the scheme as a mammoth fraud. There will be no directory. The gentlemanly agent, and the beautiful, fascinating female solicitor, who charmed with her sparkling eyes and witching tongue, have gone to other fields of usefulness, and with them have disappeared various and sundry five dollar bills.

Life-Long Glory in Exchange for Cash.

But the dentists need not despair. They may be famous yet. There is a new opening; a better and more permanent opportunity, at a higher price. An agent is now soliciting permission to wreath the heads of our "leading men" with nice, fresh, shimmering halos (one thousand candle power), at one hundred and twenty-five dollars per halo. The general scheme, as elucidated by the canvasser is not entirely new. The *New York Press* is to issue a work entitled "Representative Men of New York," and besides the statesmen, artists, literary, legal, and medical men, there will be a small but choice array of dentists. Each person is given a biographical sketch, and posterity will have the blessed privilege of gazing upon his portrait. It is only fair to state that the title is misleading, because no man, however great he may be, will be included among the "Representative Men" unless he pays cash

for the historical honor conferred; secondly, the sketches will not be truly "biographical" but rather "auto-biographical." Still, if you care for that sort of thing, dear reader, and are willing to sign the following contract, it may not be too late to "get into history, and buy a halo." This is a copy of the blank which the dentist signs:

Biographical Department.

The New York Press,
38 Park Row, New York City.

.....N. Y., ...189

"Representative Men of New York."

I hereby authorize *The New York Press,* to prepare, from data which I will furnish, or from sources suggested by me, a three-page biographical sketch of my life, to be illustrated by a steel portrait plate of myself, and published in a work entitled "Representative Men of New York." To defray the expenses of this, I agree to pay *The New York Press,* the sum of One Hundred and Twenty-five Dollars ($125.00) on approval of impression of portrait plate. This sum is to cover all charges whatsoever, and is further to entitle me to a set of the work, comprising three volumes, without further expense. The sketch is also to be submitted to me before publication.

.....

.....

Order taken by

.....

.....

(No verbal agreement will be recognized.)

Make all checks payable to *The New York Press.*

Thus we have it. Last chance this year to buy your own everlasting glory. Only a limited few will be admitted to this select company. Therefore come early and avoid the rush. Don't forget the address, 38 Park Row, New York City. Line forms on Broadway. Pah! The thing is more nauseating than ipecac.

Truly representative men do not buy their immortality. They do not purchase pedestals, and have molten images of themselves cast during lifetime to be set up when their flesh becomes carrion and all else of them is forgotten. The truly great man lives forgetful of self, and when dead is remembered by all.

The Parlor Dentist in Wales.

The following interesting account of a suit for damages against the proprietors of a dental parlor establishment, is copied from the *Western Mail*, by request of several of our English subscribers:

There were some startling revelations in a case heard at Cardiff County Court on Thursday (before his Honor Judge Owen). It was one in which Mrs. Marion Fletcher, of Glamorgan street, Canton, sued Messrs. Goodman & Co., described as dentists, of 56 Queen street, for £50 damages for personal injuries.

Mr. John Sankey (instructed by Mr. S. Sweet-Escott) appeared for the plaintiff, and Mr. C. M. Bailhache (instructed by a Bristol firm of solicitors), represented the defendants.

When the case was called on, Mr. Bailhache, on behalf of the defendants, applied for an adjournment, and handed in a medical certificate to the effect that Mr. Goodman, who lived at Bristol, was laid up with a dislocated shoulder.

Mr. Sankey opposed the adjournment. He stated that he first of all received notice of an intended application for adjournment because the defendant's solicitors would be engaged on the same day at Barnstaple Police Court. Plaintiff's solicitor wired back that he could not agree to an adjournment, and then by return of post they had notice that Mr. Goodman had dislocated his shoulder. But Mr. Goodman resided at Bristol, and the work was done at Cardiff by another gentleman.

The Judge decided that the case must go on, and Mr. Bailhache thereupon withdrew from it.

In opening, Mr. Sankey said that Marion Fletcher was a married lady, and her teeth being out of order, she was attracted by one of the defendants' many advertisements that they would supply a new set of teeth for a guinea. She called at Messrs. Goodman's premises, and a person there looked at her mouth, and cut away a large number of her teeth. She paid 4s. on account, and the next day she went again, and had more teeth cut away. She then paid another 17s., but, after cutting or breaking off twenty-two teeth, the defendants' representative said that the one-guinea set would not do, nor the three-guinea set, but that the five-guinea set would be necessary. The plaintiff thereupon paid another £4 4s., and she was supplied with a set of teeth. Shortly afterwards they began to give her trouble, and she went from time to time to Messrs. Goodman, but they only made slight alterations. She was unable to masticate her food, and she became so ill that she consulted Dr. Mullin, who examined her mouth, and told her to go to Mr. Quinlan, a well-known dentist in the town. Mr. Quinlan found it necessary to extract twenty-two stumps —(his Honor: "Oh!")—and his services were such as to run up a bill of

£25. Dr. Mullin's bill was £10, and the poor woman had paid £5 5s. for the teeth, so that the claim for damages was not excessive. As a matter of fact she had been obliged to abandon a part of her claim in order to bring it within the jurisdiction of the court.

The Judge: It is a wonder someone does not do away with that. You are entitled to £55 6s., and we can only give you £50.

Evidence was then called.

Mrs. Fletcher generally corroborated the opening statement of counsel.

Upon being asked who attended to her, she replied that the gentleman was in court.

This gentleman (who subsequently said his name was Stephens) stood forward at the request of the judge.

The Judge: Who are you? Are you the man with the dislocated shoulder? (Laughter.)

Mr. Stephens: No; I was the manager of the Cardiff branch.

The Judge: Which of the partners has a dislocated shoulder?

Mr. Stephens: Mr. Goodman, of Bristol.

The Judge: And he knows no more about the case than a man in the street?

Mr. Stephens: No.

The Judge: A more impudent attempt to postpone a trial I have never heard. I don't like these attempts to mislead the court.

Mrs. Fletcher then continued her evidence. She stated that the man broke off her teeth, and "the bits went flying all round the room." After they were broken off he put some stuff in her mouth in order to take a model.

The Judge: The same day?

Witness: Yes; and the next day I had new teeth put in. I could not wear them. There was a bad smell in my mouth, and I went for advice. I was told to take a tablespoonful of Epsom salts every morning (Laughter.) I was so bad that a lot of congealed blood got into my mouth during the night. I afterwards went to Dr. Mullin, and he sent me to a trained dentist.

The Judge: And you paid £5 5s. for this—well, I can't call it treatment.

Witness: Yes.

Dr. J. Mullin said that Mrs. Fletcher consulted him on November 22. Her gums were inflamed and ulcerated, and the teeth had been broken off. There was a rash round her mouth, and she could not masticate her food.

In reply to the judge, witness said it was not proper to break the

teeth off, or to take a model the same day as teeth were extracted—not until the gums had become hardened.

Mr. Quinlan, dentist, said the plaintiff went to him, and he found it to be the worst case he had ever seen. On December 30 he extracted fourteen stumps, and on January 4 eight more. Some of them were quite sound, and in these cases the teeth ought not to have been broken off. The decayed ones ought to have been extracted, and re-placed with false ones, and the sound ones allowed to remain.

Mr. Sankey: Do you call that barbarous negligence?

Witness: It certainly seems barbarous.

The Judge told Mr. Stephens that if he liked to be sworn and give evidence he could do so, but he need not unless he wished.

Mr. Stephens chose to give evidence, and said that Mrs. Fletcher refused to have her teeth taken out, so he cut them off.

The Judge: Sound teeth?

Witness: They were not sound. If they had been I should not have cut them off.

The Judge: But you broke them off.

Witness: No.

The Judge: But Dr. Mullin and Mr. Quinlan say so.

Witness made a remark about 99 patients out of 100, but the Judge interrupted with the remark: I hope you won't get 99 more patients in Cardiff.

Witness: I have cut some few hundred teeth off.

The Judge: Oh, I daresay you have. I'm sorry for the people who have had them done. (After a pause): Did you take the model for the mouth directly you cut the teeth off?

Witness: I did. It is the custom of every dentist to do that when the teeth are cut off.

The Judge: Are you a dentist?

Witness: No, I am a dental mechanic.

Witness, in cross-examination by Mr. Sankey, admitted that his name was not on the Dental Register. The chief partner in the firm was Mr. Edmund Aubrey Goodman, of Bristol, and his name was also not on the register, but his brother's name was. Mr. E. A. Goodman was not a qualified dentist.

Mr. Sankey: Is there a single member of your firm a qualified dentist?

Witness: I don't know. Mr. Charles Morgan, the dentist in attendance at Cardiff, is, and his name is on the register.

Mr. Sankey: Where does he live?

Witness: He used to live at Southampton.

Mr. Sankey (looking at the 1898 register): Is that the "Mr. Charles Morgan, 73 High street, Wimbledon, Surrey?"

Witness: Yes, I think so.

The Judge: When did you come to Cardiff?

Witness: I have been coming on and off.

The Judge: Then you had better be off again. (Laughter.)

Continuing, witness said it was not right to say that he "splintered" the teeth off. He never cut teeth unless the patient wished it. Mr. Morgan also saw Mrs. Fletcher. A "guinea set of teeth" consisted of the upper set, and not the lower, and this was specified on the card. He had not a card with him.

Mr. Charles Morgan also gave evidence. He said his name was on the Dental Register, and Wimbledon was his private address. He had, however, been at Cardiff for nine months. He saw the plaintiff.

The Judge: You did not see her when this man was performing the butchery upon her?

Witness: No; when I saw her she was wearing a temporary case. Her mouth was then in a dirty condition.

The Judge pointed out to witness that High street, Wimbledon, was all shops, and witness explained that he had an interest in a business there. He was not a member of the company, but was paid a salary.

Mr. Sankey: Who pays you?

Witness: I pay myself. (Laughter.)

The Judge: Do you fix your own salary? (Renewed laughter.)

Witness: No.

The Judge: Who fixes the amount?

Witness: The amount was arranged before I came to Cardiff. Mr. Victor Goodman engaged me, and his name is on the register.

In reply to another question he said he had never paid any sums in compromising claims like the present one before, but he had heard of them being done before his time.

His Honor, in giving judgment, said he hoped the case would be a warning to Cardiff people not to employ those advertising men, who had no qualifications. A more shocking case of maltreatment of an unfortunate woman he had never heard of, and he was only sorry that he could not give judgment for more than £50. He gave a verdict for that amount, with costs.

Three Interesting Cases.

The following are reported by Dr. Geo. A. Miller, of Fresno, California:

"A month ago a lady about twenty-five years of age called to have her teeth examined. On looking into her mouth, I was greatly surprised to find the

upper centrals, laterals and canines cloven nearly to the gum margin. These teeth were broad and thick, resembling an animal's hoof.

"A lady came in for full upper dentine; was wearing full lower. On talking with her, I found that she was over ninety years old, had come in twenty-five miles in a wagon, and was going out again, and would return for her plate, thus making a trip of a hundred miles.

"Pretty good for one ninety years old.

"A gentleman called upon me not long ago to have some molars filled. I noticed a left upper lateral very badly discolored; had been filled with poor amalgam, I supposed. I suggested re-filling it with gold, but was told the tooth was his pet and not to be touched. He had filled it himself, cleaning it out with the blade of his pocket knife, filing up an English silver coin and mixing the filings with some mercury from a broken ship's barometer. This was seven years ago; the tooth is in good condition to-day, only very black."

Teeth of the Ancients Inlaid with Jewels.

George Byron Gordon, the explorer, contributes an article on "The Mysterious City of Honduras" to the January *Century*. The article gives an account of recent discoveries at Copan. Amongst other interesting statements is the following:

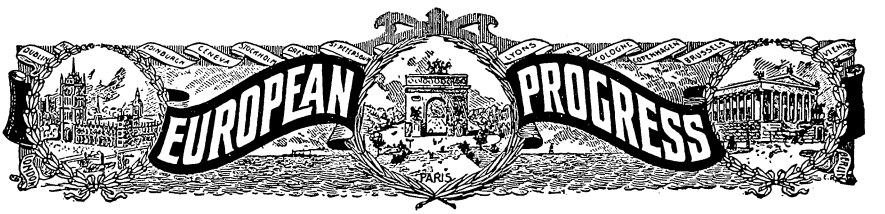
"No regular burying place has been found at Copan, but a number of isolated tombs have been explored. The location of these was strange and unexpected—between the pavement of courtyards, and under the foundations of houses. They consist of small chambers of very excellent masonry, roofed sometimes by means of the horizontal arch, and sometimes by means of slabs of stone resting on the top of the vertical walls. In these tombs one, and sometimes two, interments had been made. The bodies had been lain at full length upon the floor. The cerements had long since mouldered away, and the skeletons themselves were in a crumbling condition, and give little knowledge of the physical characteristics of the people; but one fact of surpassing interest came to light concerning their private lives, namely, the custom of adorning the front teeth with gems inlaid in the enamel, and by filling. Although not all of the sets of teeth found had been treated in this way, there are enough to show that the practice was general, at least among the upper classes; for all the tombs opened, from their associations with prominent houses, seem to have belonged to people of rank and fortune. The stone used in the inlaying was a bright green jadeite. A circular cavity about one-sixteenth of an inch in diameter was drilled in the enamel of each of the two front teeth of the upper row, and inlaid with a little disk of jadeite, cut to a perfect fit, and secured by means of a bright-red cement."

Death from Nitrous Oxide Gas.

Dr. H. A. Hare reports in the *Therapeutic Gazette* the following case as illustrating the influence which nitrous oxide may have on persons suffering from atheromatous blood vessels: A man fifty or sixty years old, who had often inhaled the gas as a dental anaesthetic without any ill effect whatever, had several teeth extracted while under its influence, and regained consciousness with the usual rapidity. He then walked to a washstand and rinsed out his mouth with water. While doing this he stated that his right hand felt numb, then complained of the extension of this numbness up his arm, and rapidly to his leg and side. He was helped to a sofa where, in the course of a very few minutes he became partially unconscious. When Dr. Hare saw him the attack had already been in existence about twenty minutes. "He was breathing stertorously, seemed to understand questions put to him, but was unable to answer them clearly, and in the course of a very few minutes passed into absolute insensibility, which, notwithstanding the use of venesection and other measures, deepened into a coma, in which he died about twelve hours after taking the anaesthetic." The author says that the case is reported "not as a death due to the direct influence of nitrous oxide gas, but as an instance of the fact that the marked rise of arterial pressure which is produced by the administration of this drug during the period of anaesthesia may cause the rupture of a blood vessel in persons who have a tendency to apoplexy."—*Druggists' Circular.*

Novel Exhibition of Bacteria.

At the annual meeting of the American Medical Association, which commences at Denver, Colo., June 7th, Messrs. McKesson & Robbins will place on exhibition a series of water color drawings illustrating the life history of the various organisms which cause malarial fevers. These plates will represent a magnification of the parasites of 20,000 diameters. A drawing on such a scale has never before been attempted, and the study necessary to perfect these illustrations has resulted in bringing out features in the organisms which have never before been recorded. The series will represent a new departure in the study of these organisms. All interested should visit this attractive exhibit.



About Solila and Other Crystal Gold Preparations.

By Prof. Dr. Sachs, Breslau, Germany.

Reported by George Randorf, Berlin, Germany.

My views on solila and sponge gold is founded on observations and experiments extending over many years. I did not consider myself qualified to publish my experiences, until I was fully convinced that my experiments offer the clearest proof of the truth of my assertions. May they be of some use to my colleagues.

I must first object to the name, solila. What does this word mean? Perhaps Herr de Frey will be able to explain it. What is solila? A so-called sponge or crystal gold, which only differs from the older preparations of this kind in that the crystals have a peculiarly perforated gold foil for layers; this combination of crystal gold and gold foil is patented. When some forty years ago crystal gold made its first triumphal entrance into the dental world, people thought that the most perfect preparation of gold for filling teeth had been found, and it cannot be denied that striking results were attained with it. But soon it fell into disfavor, the principal reason for which must be ascribed to the unequal, often very defective make of the material, and even more to the careless, superficial way of working it.

Exactly the same enthusiastic hopes and assertions as were expressed then about crystal gold, are today referred to solila. But that delusion soon passed away. Close observation, investigation and experiments led to the understanding that sponge gold is less valuable than foil. The most prominent gold fillers came back to foil, and willingly gave up the advantages of crystal gold, so as not to lose the advantages of leaf gold for the teeth entrusted to them. And yet, crystal gold has kept a safe though modest place among the filling materials, and rightly so, because it possesses qualities which, if made use of under favorable cir-

cumstances, are yet of value. The exaggerated modern enthusiasm has placed it at the head of the gold preparations for filling teeth under the name of solila, which accounts for many more bad fillings of teeth made last year than previously in five years.

The art of filling teeth with gold is not easy. It must be learned and industriously practiced. The goal will be attained by correct systematical instruction, industry, perseverance, cleverness and conscientiousness. The inventors and manufacturers of crystal gold praise it above other gold preparations for, a, extreme ease and rapidity in working; b, greater compactness and closer fitting to the substance of tooth; c, greater hardness. People say, if larger pieces of crystal gold are used, the cavity of the tooth can be filled more quickly than with cylinders or leaf gold.

I dispute this decidedly, for soft, unannealed gold cylinders may be pressed to the walls and edges of cavities easily, quickly and firmly. Of course one must know how to work after a certain system. Desultory introduction of gold into the mouth will always lead to failures, whatever preparation may be used. The great disadvantage of the unfounded puffing advertisement for solila is, that it tempts any unskilled and untutored one to suppose there is no need for special training in gold filling when working this form of gold; all that is necessary for producing the most beautiful filling of gold is to stuff one piece of sponge gold upon the other.

It is an acknowledged fact that the introduction of the gold into the cavity, and its condensation, is the part of the operation which is least difficult and requires the least time. Far more difficulties offer in the opening, cleaning, formation of the cavity, and drying of the tooth to be treated.

Retention of Gold Fillings.

That these preparatory steps must be essentially different for a filling with crystal gold, than for one with cylinder gold, or leaf gold, is only referred to in one point. They say, filling with solila requires no retaining points, only slight undercuts, even the roughness, produced by the rotation of a cross-cut bur on the wall of the tooth suffices. In my opinion retaining points for any other gold preparation are not only superfluous, but even hurtful. They give an insufficient support to the filling, endanger the vitality of the pulp through a frequently occurring injury of the pulp on the one hand; and on the other, thermal irritations from the gold anchored in the retaining points are transmitted in a great measure to the pulp.

It is mere fancy and practically impossible, that the roughness produced by the cross-cut bur is capable of retaining a filling of gold in the

cavity. A gold filling requires a cavity for retention, the walls of which must extend at a right angle from the bottom of the cavity. If this shape cannot be formed, slight undercuts must be made in the two strongest walls of the teeth. The slighter these undercuts are, the easier the introduction of gold, the more resisting the tooth.

Failures of Solila Gold.

Gold is by no means a plastic material like cement or rubber, which attaches itself to a rough surface. It must be anchored in the cavity after the swallow tail system. If large pieces of sponge gold are used, the filling is sure to become defective. It is peculiar to this gold that it gets condensed at once under pressure, the surface of the separate pieces becomes hard, whilst the inside remains spongy, and this fault is not discovered until later on the failure shows the cause very evidently.

Fillings outside the mouth in steel matrices, pieces of ivory or extracted teeth are perfectly inadequate proofs. Attempts were made to show the density of the gold, and how closely it fits the walls of the teeth by cutting through one of such phantom fillings, but I consider such proofs quite worthless. The pressure applied in condensation can be used only to a certain degree with living patients.

The homogeneity of crystal gold can only be attained if small pieces are introduced into the cavity, which are most carefully condensed by hard pressure and mallet strokes before the next piece is put on. To attain such universal compactness, requires much more time according to my experience than the making of a filling out of unannealed gold cylinders to cover the bottom of the cavity and, its side walls with a layer of strong annealed leaf gold on the surface. Whilst crystal gold stays upon pressure wherever it is pushed, the unannealed gold cylinder has the priceless advantage of spreading under hand pressure. The plugger acts as a wedge and forces the gold laterally towards the walls, by which a faultless adaptation to the tooth-substance is effected.

Crystal gold must be heated red hot, and then cooled again before the introduction into the cavity, so that the patient does not suffer unnecessarily. This heating and cooling requires plenty of time, and interferes to a great degree with the quick working of it. It is a well known and undisputable fact that non-cohesive gold adapts itself much better to the walls of the cavity, and agrees far better with the tooth-substance. All experts confirm the experience that, along the margins of fillings with non-cohesive gold, a reappearance of caries occurs very rarely, whilst we are often called on to repair defects along margins of cohesive gold fillings.

Crystal Gold Fillings Not Dense.

The adherents of crystal gold boast, that the surface of it is harder than that of annealed leaf gold. This seems to me simply impossible. If the surface of a strong filling made of annealed leaf gold is well condensed in all parts, it is as hard as molten gold, and no chemically pure gold, as used for filling purposes, can be made harder. I cannot understand how gold consisting of microscopical small crystals can be more compressed by pressure than foil, which possesses the possibly greatest compactness through its homogeneous stratum. The facility with which crystal gold can be made smoother on its surface with steel burnishers, and its surface more lustrous, leads to disappointment. The filling looks very beautiful, if the surplus, after the filling and condensing are finished, is ground off smoothly and it is polished, but after a few months it looks sadly rough (especially on masticating surfaces, if quickly filled), as though eaten by moths.

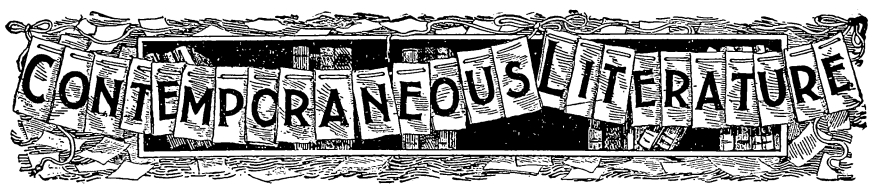
Another assertion is, that hand pressure is sufficient to condense the sponge gold; a mallet is unnecessary; yet nearly every author who gives us his opinions and experience on the application of crystal gold in modern times, says bashfully, "it recommends itself. One might finish the surface of the filling with leaf gold and a mallet."

An important advantage in the working of this gold is said to consist in the abolishing of the mallet, which injures the teeth. Every exaggerated application of force in filling, injures the teeth, be it stroke of mallet or pressure of hand. If the strokes of the mallet are executed with intelligence, and correct adaptation to each occurring case, they have never yet injured a tooth. I look upon the mallet as an indispensable tool for producing a good filling of gold. He who injures the teeth with a mallet, is not sufficiently trained for filling teeth—sheer force does not succeed; knowledge, experience, joined to the necessary manual skill, and conscientiousness, are the conditions for good work.

I will not deny that there are good qualities in crystal gold. It has some which justify its application in the right place. Prominent representatives of our special science (Miller, Scheff, Jenkins and others) have said a good word for solila. These colleagues are sharp and conscientious observers, and therefore I believe they will soon gain the conviction that crystal gold does not possess all the valuable qualities which are ascribed to it now, as well as forty years ago. They will, I hope, contribute by further communications about their experience, to give crystal gold its due though modest place among the valuable materials with respect to conservative dentistry.

Dr. M. Wheaton.

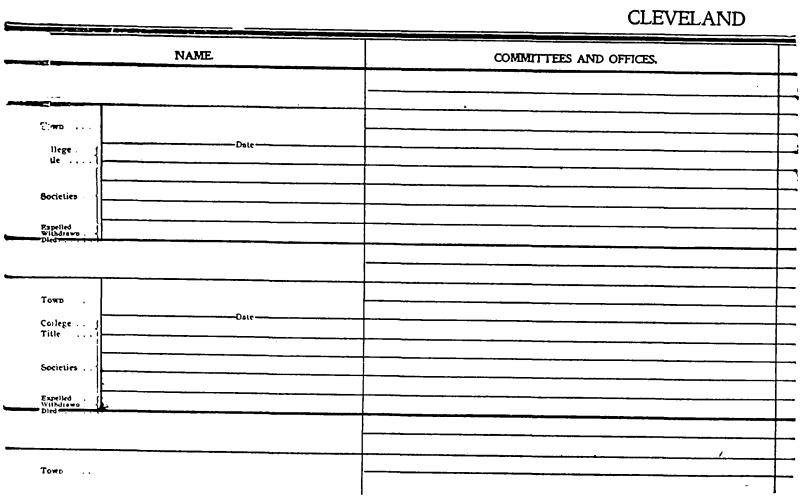
Dr. M. Wheaton, of Pittston, Pa., died in April, after a short illness. He was born in New York State in 1835, and at the age of twenty-three started dentistry in Binghamton. He went to Pittston in 1877 and practiced there until his death. He had a large practice. He was a member of the G. A. R. He leaves a widow.



Individual Records.

Dr. Bethel gives the following conspicuous place in the editorial department of the February number of his magazine, the *Ohio Dental Journal*, and it is here quoted entire as being a distinctly good idea, which many societies would do well to follow.

"The minutes of the dental societies are recorded in a book kept by the secretary for this purpose. In this book we have a complete history of the proceedings and of the work done in the society each year. While complete as a whole, it is faulty in so much that if an individual's record be desired, a long, tedious search is required. One has to begin at the beginning and search through the records to the end.



How many society members realize how much or how little they have done in their society for the good of the profession. How does the work in your society today compare with that done years ago by our forefathers in dentistry? How does your individual record compare with theirs? Would it not be interesting to have such information concisely written out so that comparison could be made? This is a problem that Dr. Henry Barnes, of Cleveland, studied out and as a result he had three diagram record books made, one for the Cleveland Dental Society, one for the Northern Ohio Dental Society, and the other for the Ohio State Dental Society, presenting them to these societies at their last meetings.

A complete record of the society work of each member is here recorded in the space allotted to him.

To give an exact idea of the arrangement of the book we present an engraving of a portion of one page. The regular size of the double page is 16x20 in. and there is room for six names on each page. You will observe that the name of the society is printed at the top. In the first column there is space for the member's name and address, date of joining the society, for his degrees, name of the college or colleges from which he graduated, various other dental societies of which he is a member, and a space to indicate whether the individual has ever withdrawn, been expelled, or has died. In the next column is to be entered all offices the member has occupied in the society, from president down to standing and even special committees, and the years he served in such capacity. The next column is for entry of titles of all papers the member has read before the society, clinics performed, or exhibits made, and in what years.

DENTAL SOCIETY.

PAPERS, CLINICS, Etc.	REMARKS.

The next and last column is for remarks regarding anything out of the ordinary that the member has done for the good of the society.

Thus, we have a complete record of every individual member. Anyone's whole record can be seen at a glance, and records thus shown should stimulate many to more active work.

The secretary of the Ohio State Dental Society is at present engaged in compiling this record from the old minute book which dates back to the time of organization of the society in 1866, and when completed it will probably be the most complete record of the kind in existence.

The Ohio State Dental Society has advanced, from time to time, many new ideas that have subsequently been adopted by other societies, and this individual record book will mark another step in advance.

In our opinion, it is a most excellent thing and every dental society in America should have one. In no other way can we get so complete a record of what Americans have done and are doing for dentistry. The thanks of the whole profession are due Dr. Barnes for these ideas. The books were gotten up only for these societies and not for sale. Dr. Barnes has the plates, however, and we presume that he will cheerfully grant the request of having other books made if various societies desire them.

A Treatise on Irregularities of the Teeth and their Correction.

Including, with the Author's Practice, other Current Methods.

Designed for Practitioners and Students.
Illustrated with nearly 2,000 Engravings.

By JOHN NUTTING FARRAR, M.D., D.D.S., Esq.
International News Co., 1888—1897.

The second volume of this important work has recently appeared and is a worthy sequel to the first, which occupies a conspicuous place in all dental libraries. In the first volume the author devoted his pages to the consideration of the theory of the correction of irregularities, together with the principles of the mechanisms needed. In this, the second volume, the application of these theories and principles is expounded. In his preface the author declares that his work is compiled from voluminous and detailed records of practical cases occurring in twenty-five years of practice, during which time more or less complete histories of his cases were kept, accompanied by pen and ink sketches of the mechanisms employed.

A conspicuous feature of this work is found in the fact that the author has been at arduous pains to give full and accurate credit for all devices and methods mentioned, which were not original with himself. In relation to this he tells us that he has been led to do this "because of the astonishing inclination shown by some writers to give credit to wrong persons." He might with equal truth have said that too many writers are prone to claim as original with themselves, devices which at best are based upon ideas propounded by two or more operators previously, and by the new claimant merely combined in a single fixture.

One procedure for which the author cannot be too highly commended is his determined use of correct and simple terms, eschewing the commoner incorrect phrases which have found their way into our literature, from the thoughtlessness or ignorance of other writers.

He very properly "widens" an arch instead of "spreading" it; he "turns" rather than "twists" teeth, and he "elevates" rather than "elongates" them. Moreover he likes "upper and lower" better than "superior and inferior" teeth, though it is evident that he has made many inferior dentures quite superior.

In the opening chapter is discussed a question which just now is receiving special attention, viz., the position of the fulcrum when moving incisor teeth. The first diagram, which explains the philosophy of tooth movement in its relation to applied force is as correct as it is ingenious. But the author admits that this theory, though correct as a philosophic principle, is not universally applicable, because of counteracting agencies met in regulating teeth in practice. In the next diagram is shown the application of force in various directions, together with the reciprocal movement of crown and root. Here we see fifteen figures in six of which, the fulcral bearing being circumscribed, is indicated in the diagram by a triangular mark. A curious feature of these diagrams will attract the attention of the student of this subject. In the fourth figure of the first line of diagrams, we note that the force is applied at right angles to press the tooth towards the palate, and the fulcral bearing is indicated to be just below the neck of the tooth, at the palatal aspect; contrarily in the second figure of the third line of diagrams where the force applied at right angles is moving the crown labially the fulcral bearing is indicated to be half way between the neck and the apex. In the first instance the fulcrum is placed at the palatal side of the tooth, while in the second it is placed at the labial. It would seem to the reviewer that both of these diagrams are incorrect. This, however, is scarcely the place to discuss the matter. In the next set of diagrams it is very clearly shown that roots may be moved by having two points of attachment, one at the incising edge and one near the neck. One of these being immovable, and the other representing the applied force, it becomes a self-evident proposition that the root end must move in accordance with the resulting impetus transmitted. When we know that though this volume is now published for the first time, the manuscript, together with the blocks from which these diagrams were printed, were all prepared many years ago prior to the appearance of volume one, we realize that to Dr. Farrar is due much of the credit in connection with this theory of root movement which the profession has accorded to others.

In relation to anchor teeth, the author expresses a view which it would be well for the profession to adopt as a final dogma for future guidance in practice. He says, "When the first molar has been extracted it becomes necessary to use the second and third molars for

anchorage to move back bicuspids; but they should not be drawn upon for moving one tooth at a time, and even then these anchor teeth should be frequently examined to prevent too great inclination forward." This rule would be equally forceful and of more frequent application where the first bicuspids are removed, and the second bicuspids and first molars are utilized as anchors for drawing back the six anterior teeth, in cases of extensive prognathism.

In a brief but interesting chapter is discussed the irregularities of the temporary set. Dr. Farrar has only seen one case of protruding upper teeth (temporary), and this he attributed to thumb-sucking. He quotes Dr. Talbot, to the same effect, that writer saying that he had "never observed a case of protrusion of the upper (temporary), except in cases of thumb-sucking, and only a very few of these." The reviewer has the models of an extensive protrusion of the upper temporary set, in which there was not only no history of thumb-sucking, but moreover two perfect lateral incisors were present on one side, there being thus an extra tooth in the arch prior to the eruption of any of the secondary teeth.

It is, of course, impossible in a review to give any adequate idea of the comprehensiveness of this great addition to our literature of Orthodontia. It must suffice to say that the work, though covering between seven and eight hundred pages, is none too long, all of the many subjects being treated tersely and without circumlocution, though with adequate detail. In short, this is pre-eminently a book for constant reference by those who essay to regulate the teeth of human beings.

The letterpress is irreproachable, being, as it is, especially designed to meet the requirements of the busy man who must find time for study during the night. The print is large and clear, and the paper and ink the best. It is to be hoped that the third volume will not be long delayed.

R. O.

Descriptive Anatomy of the Human Teeth.

Fourth Edition.

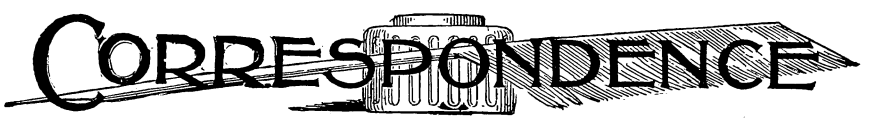
By G. V. Black, M.D., D.D.S., Sc.D.

Philadelphia, Pa. The S. S. White Dental Manufacturing Co., 1897.

This book having been for some years the only recognized text-book on this subject, ought to require no introduction to the dental world, especially those interested in educational matters. It is only a few years ago that our literature was debased by the lack of uniformity in the nomenclature used by different men. Frequently an interpreter

would have been welcome to unravel the tangle of words and terms used to convey different meaning. Out of this slough of discord Prof. Black with this little volume has landed our nomenclature on a bed-rock of security; so that to-day in all matters of dispute its pages serve as the final court of decision. To those older practitioners who devote some attention to the literature of their profession, and who have not seen the volume, we especially recommend it. In this edition the author has introduced tables of the angles of teeth and of their surfaces, a very important assistance to us when describing the minute anatomy of the teeth. He has also added a new word to our nomenclature descriptive of the opening between the angles of the teeth, a name long required in our descriptive work and which hereafter will be universally adopted, viz., *embrasure*.

M. L. R.



Editor ITEMS OF INTEREST:—

I regret that I had overlooked "A Plea for Conservative Scientific Practice," in the ITEMS OF INTEREST for December, 1897, by Dr. Charlotte E. Benton. Writing of welding gold leaf on a polished surface of condensed tin, she says, "It is adapted to incisor and other teeth decayed too near the pulp to permit deep undercuts or the use of cement and gold."

Tin as a Filling Material.

Now with a pretty general acquaintance with good operative dentists for thirty years past, this is the first time I have seen the statement that a nearly exposed pulp is safer near a metal filling, than near one of cement. I have seen hundreds of statements to the exact contrary. I have also understood that tin was not used in teeth more than it is, because of the difficulty in getting sufficient anchorage. And I have filled teeth for twenty years with cement for a foundation, where nothing else I ever saw used could have been made to stay in place. I have also used cement to preserve the natural appearance of thin walls of enamel in the front teeth. But this writer tells us that she saw tin

used without showing, where the teeth were too badly decayed to permit the use of cement and gold. This is equivalent to telling me that for over twenty-five years, all operative dentists I have seen, including myself, have been doing an impossible thing, while it would have been proper to have done what we have seen numberless times was utterly impracticable. It is to be regretted that this writer did not tell us how tin is to be made to stay in cavities without undercuts, such as are required for gold and cement, especially as she tells of its use in large labial cavities in connection with cavities in the distal sides extending to the cutting edges in superior incisors.

With my experience, a more impractical and impossible thing could scarcely be conceived of. Will this writer, or any other party who can do so, please tell us how these things are done, when we have proven to our own satisfaction so many times that they cannot be done?

European Education.

Her remark that the term of study for dental students is longer in foreign countries than in this country, and that, nevertheless, they do not surpass us, is quite pertinent.

Years ago I became acquainted with a number of M. D.'s who had joined the ranks of the dental profession. They were generally, so far as the actual practice of dentistry was concerned, among the poorest then in the profession. Their medical education seemed an impediment rather than an advantage. Their old habit of dosing seemed to be what they preferred to do, instead of the extensive and laborious manipulations that were the resort of men who had not first learned so much about drugging their patients.

There is no doubt that European dental students spend years in the study of sciences and theories, which they are never reminded of in any ordinary dental practice. And as a consequence, they soon forget what has cost them years of study, and if they needed to be examined every time they crossed a State line, as in this country, could not pass.

I have also had opportunity to examine many cases of artificial teeth, crown and bridge work, and filled teeth, that had been performed in Europe, and do not remember a single case that was not decidedly inferior to the work of our village dentists in this country. I have always thought they should have studied dentistry instead of so much of something else.

Respectfully,

Manatee, Fla., March 21, 1898. W. E. DRISCOLL.

The National Dental Association.

The next annual meeting of the National Dental Association will be held in Omaha, commencing on Tuesday, the 30th day of August, 1898.

Attention is called to the fact that all who were members of the American Dental Association and of the Southern Dental Association at the time of the formation of the National Dental Association, are now members of the latter organization.

The Constitution, Article III., Section 5, provides as follows:

"It is hereby specially provided that all persons at present permanent members of the American Dental Association and of the Southern Dental Association, are permanent members of this Association, and entitled to all the privileges of the class to which they belonged without further action, and the Treasurer is hereby directed to transcribe their names upon the roll of membership of this Association."

The officers of the National Dental Association will leave nothing undone to make the meeting at Omaha a success, and they hope the attendance and interest in the first active annual meeting of the Association will be commensurate with its importance.

By order of

THOMAS FILLEBROWN, President.

EMMA EAMES CHASE, Corresponding Secretary.

Southern Branch of the National Association.

"Resolved, That the Southern Branch of the National Association endorses and approves the efforts of Dr. Ottolengui to have the patent laws so amended as to correct the evils now existing pertaining to dentistry."

C. L. ALEXANDER, Cor. Sec., S. B. N. A.

Charlotte, N. C.

South Dakota State Dental Society.

The annual meeting of the South Dakota State Dental Society will be held at Madison, on June 1, 2, 3, 1898. At this session will be rendered an exceptionally good programme.

D. St. J. Davies, D.D.S.,
Chairman of Programme Committee.

Woonsocket, S. D.

Colorado State Dental Association.

The twelfth annual meeting of the Colorado State Dental Association will be held in Denver, June 7th, 8th, 9th and 10th, in conjunction with the Stomatological section of the American Medical Association.

An excellent programme is assured. Those attending may avail themselves of reduced railroad rates. A cordial invitation is extended to all members of the profession.

Arthur C. Watson,
Chairman Executive Committee.

Colorado Springs, Colo.

Massachusetts Board of Registration in Dentistry.

A meeting of the Massachusetts Board of Registration in Dentistry for the examination of candidates, will be held in Boston, Monday, June 13th, 1898, at 9.30 a. m., at Boston Dental Infirmary, Tremont street. Examination in Operative Dentistry at 10 o'clock.

Each candidate must come prepared with rubber-dam, gold and instruments to demonstrate his skill in operative dentistry. Any one who wishes may bring his patient. So far as possible, patients will be furnished.

The Theoretic Examination will include Anatomy, Physiology, Histology, Chemistry, Pathology, Materia Medica, Operative and Prosthetic Dentistry.

All applications, together with a fee of twenty dollars, must be filed with the Secretary of the Board on or before June 6th, as no application for this meeting will be received after that date.

G. E. Mitchell, D.D.S., Secretary.

25 Merrimack Street, Haverhill, Mass.

Northern Iowa Dental Society.

The fourth annual meeting of the Northern Iowa Dental Society will be held at Waterloo, July 5, 6 and 7, 1898. A very fine programme is being prepared, and we expect to have an interesting and profitable meeting.

The Waterloo Chatauqua Assembly will be in session, and all who attend the meeting will have an opportunity to take in some of the best numbers on the programme. Reduced rates on all railroads.

WM. H. STEELE, Secretary.

Forest City, Iowa.

Missouri State Dental Association.

The thirty-fourth annual meeting of the Missouri State Dental Association will convene at Merrimac Highlands (near St. Louis), July 5, 6, 7 and 8, 1898.

All dentists practicing in the State who are not members (and wish to become such) of the Association, and dentists of other States, are cordially invited to attend.

When purchasing your railroad ticket, remember to get your certificate from ticket agent, so you will be entitled to the rebate on your return ticket.

A large attendance is anticipated, and we are assured of a royal meeting.

H. H. SULLIVAN, Rec. Secy.

Kansas City, Mo.

Wisconsin State Dental Society.

The twenty-eighth annual meeting of the Wisconsin State Dental Society will be held at Madison, July 19-21, 1898. An interesting programme will be provided. A cordial invitation is extended to all dentists in the State of Wisconsin who are not members of the Society, and also dentists of other States, to attend our meeting. Hotels and railroads will make the usual reductions.

R. G. RICHTER, President,
W. H. MUELLER, Secretary,
21 West Main Street.

Madison, Wis.

New Jersey State Dental Society.

At the annual meeting of the New Jersey State Dental Society to be held in the "Auditorium," Asbury Park, N. J., July 21st and 23d inclusive, the Exhibit Committee are making efforts to eclipse all past records.

Dr. Harvey Iredell, of New Brunswick, N. J., has been chosen Chairman of the electrical portion of the exhibit. He will have placed at the disposal of the exhibitors both a 500 and 110 volt current. Those having water motors to present can be accommodated with high water pressure also.

The exhibitors selecting space prior the programme going to print will be mentioned therein.

New Jersey Summer Examinations.

The New Jersey Dental Examining Board will hold the summer examinations at the Commission rooms, 88 Broad street, Elizabeth, N. J., commencing on Tuesday, July 5th, and lasting for three days. All applications must be in the hands of the Secretary before June 21st.

Attention is called to the new Dental Law of the State, which requires preliminary education equal to High School graduation in New Jersey. Candidates who have not the necessary papers to show this standard, will be given an examination held under the supervision of the State Superintendent of Public Instruction; all preliminary examinations must be finished before the applications can be accepted.

G. CARLETON BROWN, Secretary.

88 Broad street, Elizabeth, N. J.

To New Jersey Dentists.

Notice is hereby given that dentists who desire to become members of the State Society at the annual meeting at Asbury Park, July, 1898, will be enabled from this date to secure the necessary blanks and information, thereby saving time and secure the early action of the Membership Committee on all applications.

WILLIAM E. TRUEX, D.D.S.,
Chairman Membership Committee.

Freehold, N. J.